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(71) Applicants (for all designated States except US):
RIBOZYME PHARMACEUTICALS, INCORPO-

- (71) Applicants (for all designated States except US):
 RIBOZYME PHARMACEUTICALS, INCORPORATED [US/US]; 2950 Wilderness Place, Boulder, CO 80301 (US). CHIRON CORPORATION [US/US]; 4560 Horton Street, Emeryville, CA 94608-2916 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): ESCOBEDO, Jaime [US/US]; 1470 Livorna Road, Alamo, CA 94507

(US). MCSWIGGEN, James [US/US]; 4866 Franklin Drive, Boulder, CO 80301 (US). PAVCO, Pamela [US/US]; 705 Barberry Circle, Lafayette, CO 80026 (US). STINCHCOMB, Dan [US/US]; 8409 South Country Road 3, Ft. Collins, CO 80528 (US). SANDBERG, Jennifer [US/US]; 620 Bluegrass Drive, Longmont, CO 80503 (US). GORDON, Gilad [US/US]; 3605 Silver Plume Lane, Boulder, CO 80303 (US).

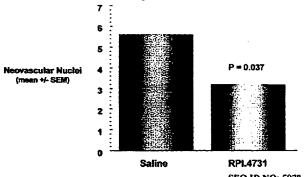
- (74) Agent: TERPSTRA, Anita, J.; McDonnell Boehnen Hulbert & Berghoff, Suite 3200, 300 South Wacker Drive, Chicago, IL 60606 (US).
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(54) Title: NUCLEIC ACID BASED MODULATION OF FEMALE REPRODUCTIVE DISEASES AND CONDITIONS

English

RPI.4731 Reduces Hypoxia-Induced Retinal Neovascularization in Neonatal Mice



SEQ ID NO: 5978
Results: ~40% decrease in retinal neovascularization following two intraocular injections of RPI.4731

(57) Abstract: The present invention relates to nucleic acid molecules, including dsRNA, siRNA, antisense, 2,5-A chimeras, aptamers, and enzymatic nucleic acid molecules, such as hammerhead ribozymes, DNAzymes, and allozymes, which modulate the expression of vascular endothelial growth factor receptor (VEGF) and/or vascular endothelial growth factor receptor (VEGF) genes for the treatment and/or diagnosis of diseases and conditions associated with angiogenesis, such as cancer, tumor angiogenesis, or ocular indications such as diabetic retinopathy, or age related macular degeneration, proliferative diabetic retinopathy, hypoxia-induced angiogenesis, rheumatoid arthritis, psoriasis, wound healing, and female reproductive disorders and conditions, including but not limited to endometriosis, endometrial carcinoma, gynecologic bleeding disorders, irregular menstrual cycles, ovulation, premenstrual syndrome (PMS), and menopausal dysfunction.

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NUCLEIC ACID BASED MODULATION OF FEMALE REPRODUCTIVE DISEASES AND CONDITIONS

This patent application claims priority from Sandberg et al., USSN 60/334,461, filed November 30, 2001, entitled "Method and Reagent for the Modulation of Female Reproductive Diseases and Conditions" and Pavco et al., USSN 10/138,674, filed May 3, 2002, which is a continuation in part of Pavco et al., USSN 09/870,161, which is a continuation-in-part of Pavco et al., USSN 09/708,690, filed November 7, 2000, which is a continuation-in-part of Pavco et al., USSN 09/371,722, filed August 10, 1999, which is a continuation-in-part of Pavco et al., USSN 08/584,040, filed January 11, 1996, which claims the benefit of Pavco et al., USSN 60/005,974, filed on October 26, 1995; these earlier applications are entitled "Method and Reagent for Treatment of Diseases or Conditions Related to Levels of Vascular Endothelial Growth Factor Receptor". Each of these applications is hereby incorporated by reference herein in it's entirety including the drawings and tables.

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Technical Field Of The Invention

This invention relates to methods and reagents for the treatment of diseases or conditions relating to the levels of expression of vascular endothelial growth factor (VEGF) and vascular endothelial growth factor receptor(s). Specifically, the instant invention features nucleic-acid based molecules and methods that modulate the expression of vascular endothelial growth factor and/or vascular endothelial growth factor receptors, such as VEGFR1 and/or VEGFR2, that are useful in preventing, treating, controlling and/or diagnosing disorders and conditions related to angiogenesis, including but not limited to cancer, tumor angiogenesis, or ocular indications such as diabetic retinopathy, or age related macular degeneration, proliferative diabetic retinopathy, hypoxia-induced angiogenesis, theumatoid arthritis, psoriasis, wound healing, endometriosis, endometrial carcinoma, gynecologic bleeding disorders, irregular menstrual cycles, ovulation, premenstrual syndrome (PMS), and menopausal dysfunction.

Background Of The Invention

The following is a discussion of relevant art, none of which is admitted to be prior art to the present invention.

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VEGF, also referred to as vascular permeability factor (VPF) and vasculotropin, is a potent and highly specific mitogen of vascular endothelial cells (for a review see Ferrara, 1993 Trends Cardiovas. Med. 3, 244; Neufeld et al., 1994, Prog. Growth Factor Res. 5, 89). VEGF-induced neovascularization is implicated in various pathological conditions such as tumor angiogenesis, or ocular indications such as diabetic retinopathy, or age related macular degeneration, proliferative diabetic retinopathy, hypoxia-induced angiogenesis, rheumatoid arthritis, psoriasis, wound healing and others.

VEGF, an endothelial cell-specific mitogen, is a 34-45 kDa glycoprotein with a wide range of activities that include promotion of angiogenesis, enhancement of vascular-permeability and others. VEGF belongs to the platelet-derived growth factor (PDGF) family of growth factors with approximately 18% homology with the A and B chain of PDGF at the amino acid level. Additionally, VEGF contains the eight conserved cysteine residues common to all growth factors belonging to the PDGF family (Neufeld et al., supra). VEGF protein is believed to exist predominantly as disulfide-linked homodimers; monomers of VEGF have been shown to be inactive (Plouet et al., 1989 EMBO J. 8, 3801).

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VEGF exerts its influence on vascular endothelial cells by binding to specific high-affinity cell surface receptors. Covalent cross-linking experiments with ¹²⁵I-labeled VEGF protein have led to the identification of three high molecular weight complexes of 225, 195 and 175 kDa presumed to be VEGF and VEGF receptor complexes (Vaisman et al., 1990 J. Biol. Chem. 265, 19461). Based on these studies VEGF-specific receptors of 180, 150 and 130 kDa molecular mass were predicted. In endothelial cells, receptors of 150 and 130 kDa have been identified. The VEGF receptors belong to the superfamily of receptor tyrosine kinases (RTKs) characterized by a conserved cytoplasmic catalytic kinase domain and a hydrophilic kinase sequence. The extracellular domains of the VEGF receptors consist of seven immunoglobulin-like domains that are thought to be involved in VEGF binding functions.

The two most abundant and high-affinity receptors of VEGF are fit-1 (VEGFR1) (fms-like tyrosine kinase) cloned by Shibuya et al., 1990 Oncogene 5, 519 and KDR (VEGFR2) (kinase-insert-domain-containing receptor) cloned by Terman et al., 1991 Oncogene 6, 1677. The murine homolog of KDR, cloned by Mathews et al., 1991, Proc. Natl. Acad. Sci., USA, 88, 9026, shares 85% amino acid homology with KDR and is termed as fik-1 (fetal liver kinase-1). The high-affinity binding of VEGF to its receptors is modulated by cell surface-associated heparin and heparin-like molecules (Gitay-Goren et al., 1992 J. Biol. Chem. 267, 6093).

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VEGF expression has been associated with several pathological states such as tumor angiogenesis, several forms of blindness, rheumatoid arthritis, psoriasis and others. In addition, a number of studies have demonstrated that VEGF is both necessary and sufficient for neovascularization. Takashita et al., 1995 J. Clin. Invest. 93, 662, demonstrated that a single injection of VEGF augmented collateral vessel development in a rabbit model of ischemia. VEGF also can induce neovascularization when injected into the cornea. Expression of the VEGF gene in CHO cells is sufficient to confer tumorigenic potential to the cells. Kim et al., supra and Millauer et al., supra used monoclonal antibodies against VEGF or a dominant negative form of VEGFR2 receptor to inhibit tumor-induced neovascularization.

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During development, VEGF and its receptors are associated with regions of new vascular growth (Millauer et al., 1993 Cell 72, 835; Shalaby et al., 1993 J. Clin. Invest. 91, 2235). Furthermore, transgenic mice lacking either of the VEGF receptors are defective in blood vessel formation and these mice do not survive; VEGFR2 appears to be required for differentiation of endothelial cells, while VEGFR1 appears to be required at later stages of vessel formation (Shalaby et al., 1995 Nature 376, 62; Fung et al., 1995 Nature 376, 66). Thus, these receptors apparently need to be present to properly signal endothelial cells or their precursors to respond to vascularization-promoting stimuli.

Increasing evidence suggests that the VEGF family may also be involved with both the etiology and maintenance of peritoneal endometriosis. Peritoneal endometriosis is a significant debilitating gynecological problem of widespread prevalence. It is now generally accepted that the pathogenesis of peritoneal endometriosis involves the implantation of exfoliated endometrium. Maintenance of exfoliated endometrial tissue is dependent upon the generation and maintenance of an extensive blood supply both within and surrounding the ectopic tissue.

Endometriosis is a disease affecting an estimated 77 million women and teenagers worldwide. Endometriosis is a leading cause of infertility, chronic pelvic pain and hysterectomy. Endometriosis can be characterized when endometrial tissue (the tissue inside the uterus which builds up and is shed each month during menses) is found outside the uterus, in other areas of the body. The endometrial tissue can respond to hormonal commands each month and break down and bleed. However, unlike the endometrium, these tissue deposits have no way of leaving the body. The result is internal bleeding, degeneration of blood and tissue shed from the growths, inflammation of the surrounding areas, expression of irritating enzymes and formation of scar tissue. In addition, depending on the location of the growths.

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interference with the bowel, bladder, intestines and other areas of the pelvic cavity can occur. Endometrial tissue has even been found lodged in the skin and at other extrapelvic locations like the arm, leg and even brain.

Currently, the presence of Endometriosis can only be confirmed through surgery such as laparoscopy, but can be suspected based on symptoms, physical findings and diagnostic tests. Endometriosis can be treated in many different ways, both surgically and medically. Most commonly, surgery will be performed during which the disease will be excised, ablated, fulgarated, cauterized or otherwise removed, and adhesions will also be freed. Surgeries include but are not limited to laparoscopy; laparotomy; presacral and uterosacral and various levels of hysterectomies, where some or all of the reproductive organs are removed. Often, this method will only relieve the symptoms associated with growths on the reproductive organs, not the bowels or kidneys and related areas where Endometriosis can be present.

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There are several drugs used to treat Endometriosis that are utilized either alone or in combination with surgery. These include contraceptives, GnRH agonists, and/or synthetic hormones. GnRH agonists are commonly used on women in all stages of the disease and may sometimes have serious side affects. GnRH (gonadotropin releasing hormone) analogues are classified into 2 groups: agonists and antagonists. Agonists are commonly used in the treatment of Endometriosis by suppressing the manufacture of follicle stimulating hormone (FSH) and luteinizing hormone (LH), common hormones required in ovulation. When they are not secreted, the body will go into "pseudo-menopause," stalling the growth of more implants. However, these are again only stop-gap measures that can be utilized only for short term intervals. Once the body returns to it's normal state, the Endometriosis will again begin to implant itself.

Angiogenesis is likely to be involved in the pathogenesis of endometriosis. According to the transplantation theory, when the exfoliated endometrium is attached to the peritoneal layer, the establishment of a new blood supply is essential for the survival of the endometrial implant and development of endometriosis (Donnez et al., 1998, Hum. Reprod., 13, 1686-1690). Endometrial growth and repair after menstruation are associated with profound angiogenesis. Abnormalities in these processes result in excessive or unpredictable bleeding patterns and are common in many women. It is therefore important to understand which factors regulate normal endometrial angiogenesis. Vascular endothelial growth factor (VEGF) is an endothelial cell-specific mitogen that plays an important role in normal and pathological angiogenesis (Fasciani et al., 2000, Mol. Hum. Reprod., 6, 50-54; Sharkey et al., 2000, J. Clin. Endocrinol. Metab., 85, 402-409). Sources of this factor include the eutopic

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endometrium, ectopic endometriotic tissue and peritoneal fluid macrophages. Important to its etiology is the correct peritoneal environment in which the exfoliated endometrium is seeded and implants. Established ectopic tissue is then dependent on the peritoneal environment for its survival, an environment that supports angiogenesis. The increasing knowledge of the involvement of the VEGF family in endometriotic angiogenesis raises the possibility of novel approaches to its medical management, with particular focus on the anti-angiogenic control of the action of VEGF (McLaren, 2001, Hum. Reprod. Update, 6, 45-55).

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Pavco et al., International PCT Publication No. WO 97/15662, describes methods and reagents for treating diseases or conditions related to levels of vascular endothelial growth factor receptor.

Robinson, International PCT Publication No. WO 95/04142, describes the use of certain antisense oligonucleotides targeted against VEGF RNA to inhibit VEGF expression.

Jellinek et al., 1994 Biochemistry 33, 10450 describe the use of specific VEGF-specific high-affinity RNA aptamers to inhibit the binding of VEGF to its receptors.

Rockwell and Goldstein, International PCT Publication No. WO 95/21868, describe the use of certain anti-VEGF receptor monoclonal antibodies to neutralize the effect of VEGF on endothelial cells.

Pappa, International PCT Publication No. WO 01/32920, describes inhibitors, including certain ribozyme and antisense nucleic acid molecules, of specific genes, including cathepsin D, AEBP-1, stromelysin-3, cystatin B, protease inhibitor 1, sFRP4, gelsolin, IGFBP-3, dual specificity phosphatase 1, PAEP, Ig gamma chain, ferritin, complement component 3, proalpha-1 type III collagen, proline 4-hydroxylase, alpha-2 type I collagen, claudin-4, melanoma adhesion protein, procollagen C-endopeptidase enhancer, nascent-polypeptide-associated complex alpha polypeptide, elongation factor 1 alpha (EF-1-alpha), vitamin D3 25 hydroxylase, CSRP-1, steroidogenic acute regulatory protein, apolipoprotein E, transcobalamin II, prosaposin, early growth response 1 (EGR1), ribosomal protein S6, adenosine deaminase RNA-specific protein, RAD21, guanine nucleotide binding protein beta polypeptide 2-like 1 (RACK1) and podocalyxin genes which are all differentially expressed in tissues within individual patients with endometriosis.

30 Labarbera et al., International PCT Publication No. WO 00/73416, describes specific antisense nucleic acid molecules targeting follicle-stimulating hormone receptor.

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Storella *et al.*, International PCT Publication No. WO 99/63116, describes modulators of Prothymosin gene products for treating endometriosis, including certain ribozymes and antisense nucleic acid molecules.

Summary Of The Invention

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This invention features nucleic acid-based molecules, for example, enzymatic nucleic acid molecules, allozymes, antisense nucleic acids, 2-5A antisense chimeras, triplex forming oligonucleotides, decoy RNA, dsRNA, siRNA, aptamers, and antisense nucleic acids containing nucleic acid cleaving chemical groups, and methods to modulate vascular endothelial growth factor (VEGF) and/or vascular endothelial growth factor receptor (VEGFr) gene expression. Non-limiting examples of genes that encode vascular endothelial growth factor receptors of the invention include VEGFR1, VEGFR2 or combinations thereof. In particular, the instant invention features nucleic acid-based molecules and methods that modulate the expression of vascular endothelial growth factor and/or vascular endothelial growth factor receptors, such as VEGFR1 and/or VEGFR2, that are useful in preventing, treating, controlling, and/or diagnosing angiogenesis related diseases and conditions, including but not limited to tumor angiogenesis, cancers such as breast cancer, lung cancer, colorectal cancer, renal cancer, pancreatic cancer, or melanoma, or ocular indications such as diabetic retinopathy, or age related macular degeneration, and female reproductive disorders and conditions, including but not limited to endometriosis, endometrial carcinoma, gynecologic bleeding disorders, irregular menstrual cycles, ovulation, premenstrual syndrome (PMS), and menopausal dysfunction.

In one embodiment, the invention features one or more nucleic acid-based molecules and methods that independently or in combination modulate the expression of gene(s) encoding vascular endothelial growth factor receptors. Specifically, the present invention features nucleic acid molecules that modulate the expression of VEGF (for example Genbank Accession No. NM_003376), VEGFR1 receptor (for example Genbank Accession No. NM_002376), and VEGFR2 receptor (for example Genbank Accession No. NM_002253) that are useful in preventing, treating, controlling, and/or diagnosing tumor angiogenesis, cancers such as breast cancer, lung cancer, colorectal cancer, renal cancer, pancreatic cancer, or melanoma, or ocular indications such as diabetic retinopathy, or age related macular degeneration, and female reproductive disorders and conditions, including but not limited to

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endometriosis, endometrial carcinoma, gynecologic bleeding disorders, irregular menstrual cycles, ovulation, premenstrual syndrome (PMS), and menopausal dysfunction.

In one embodiment, the present invention features a compound having Formula I: (SEQ ID NO: 5977)

5' gsasgsugugcUGAuGagg ccgaaa ggccGaaAgucugB 3'

wherein each a is 2'-O-methyl adenosine nucleotide, each g is a 2'-O-methyl guanosine nucleotide, each c is a 2'-O-methyl cytidine nucleotide, each u is a 2'-O-methyl uridine nucleotide, each A is adenosine, each G is guanosine, each s individually represents a phosphorothioate internucleotide linkage, U is 2'-deoxy-2'-C-allyl uridine, and B is an inverted deoxyabasic moiety. This compound is also referred to as ANGIOZYMETM ribozyme.

In another embodiment, the present invention features a compound having Formula II: (SEQ ID NO: 5978).

5'-usascs asau ucU GAu Gag gcg aaa gcc Gaa Aag aca aB-3'

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wherein each a is 2'-O-methyl adenosine nucleotide, each g is a 2'-O-methyl guanosine nucleotide, each c is a 2'-O-methyl cytidine nucleotide, each u is a 2'-O-methyl uridine nucleotide, each A is adenosine, each G is guanosine, each s individually represents a phosphorothioate internucleotide linkage, \underline{U} is 2'-deoxy-2'-C-allyl uridine, and B is an inverted deoxyabasic moiety.

In one embodiment, the invention features a composition comprising a nucleic acid molecule of the invention in a pharmaceutically acceptable carrier. In another embodiment, the invention features a composition comprising a compound of Formula I and/or Formula II in a pharmaceutically acceptable carrier or diluent.

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In one embodiment, the invention features a method of administering to a cell, for example a mammalian cell, including a human cell, a nucleic acid molecule of the invention comprising contacting the cell with the nucleic acid molecule under conditions suitable for administration, for example in the presence of a delivery reagent such as a lipid, cationic lipid, phospholipid, or liposome. In another embodiment, the invention features a method of administering to a cell, for example a mammalian cell, including a human cell, a compound of Formula I and/or Formula IIcomprising contacting the cell with the compound under

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conditions suitable for administration, for example in the presence of a delivery reagent such as a lipid, cationic lipid, phospholipid, or liposome.

In one embodiment, the present invention features a mammalian cell comprising a nucleic acid molecule of the invention, wherein the mammalian cell is, for example, a human cell. In another embodiment, the present invention also features a mammalian cell comprising the compound of Formula I and/or Formula II, wherein the mammalian cell is, for example, a human cell.

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In one embodiment, the invention features a method of inhibiting angiogenesis, for example tumor angiogenesis, or ocular indications such as diabetic retinopathy, or age related macular degeneration, or endometrial neovascularization, in a subject comprising contacting the subject with a nucleic acid molecule of the invention, under conditions suitable for the inhibition. In another embodiment, the invention features a method of inhibiting angiogenesis, for example tumor angiogenesis, or ocular indications such as diabetic retinopathy, or age related macular degeneration, or endometrial neovascularization, in a subject, comprising contacting the subject with a compound of Formula I and/or Formula II, under conditions suitable for the inhibition.

In another embodiment, the invention features a method of treatment of a subjecthaving an ocular condition associated with the increased level of a VEGF receptor, for example diabetic retinopathy, or age related macular degeneration, comprising contacting cells of the subjectwith a nucleic acid molecule, such as an enzymatic nucleic acid molecule targeted against a VEGF receptor RNA, e.g., molecule according to Formula I and/or II, under conditions suitable for the treatment.

In another embodiment, the invention features a method of treatment of a subjecthaving a condition associated with an increased level of VEGR and/or a VEGF receptor, for example tumor angiogenesis, cancers such as breast cancer, lung cancer, colorectal cancer, renal cancer, pancreatic cancer, or melanoma, ocular diseases or ocular indications such as diabetic retinopathy, or age related macular degeneration, rhuematoid arthritis, psoriasis endometriosis, endometrial carcinoma, gynecologic bleeding disorders, irregular menstrual cycles, ovulation, premenstrual syndrome (PMS), or menopausal dysfunction, comprising contacting cells of the subject with a nucleic acid molecule of the invention, such as a compound of Formula I and/or Formula II, under conditions suitable for the treatment.

In yet another embodiment, the inventive method of treatment further comprises the use of one or more drug therapies under conditions suitable for the treatment. Non-limiting

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examples of other drug therapies that can be used in combination with nucleic acid molecules of the invention include to 5-fluoro uridine, Leucovorin, Irinotecan (CAMPTOSAR® or CPT-11 or Camptothecin-11 or Campto), Paclitaxel, or Carboplatin, GnRH (gonadotropin releasing hormone) agonists, Lupron Depot (Leuprolide Acetate), Synarel (naferalin acetate), Zolodex (goserelin acetate), Suprefact (buserelin acetate), Danazol, or oral contraceptives including but not limited to Depo-Provera or Provera (medroxyprogesterone acetate), or any other estrogen/progesterone contraceptive.

In one embodiment, the invention features a method of administering to a mammal, for example a human, a nucleic acid molecule of the invention comprising contacting the mammal with the nucleic acid molecule under conditions suitable for the administration, for example, in the presence of a delivery reagent such as a lipid, cationic lipid, phospholipid, or liposome. In another embodiment, the invention features a method of administering to a mammal, for example a human, a compound of Formula I and/or Formula II comprising contacting the mammal with the compound under conditions suitable for the administration, for example, in the presence of a delivery reagent such as a lipid, cationic lipid, phospholipid, or liposome.

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In one embodiment, the invention features a nucleic acid molecule which down regulates expression of a vascular endothelial growth factor (VEGF) and/or vascular endothelial growth factor receptor (VEGFr) gene, for example, wherein the VEGFr gene comprises VEGFR1 or VEGFR2 and any combination thereof.

In one embodiment, a nucleic acid molecule of the invention, such as an enzymatic nucleic acid molecule, antisense nucleic acid molecule, 2-5A antisense chimera, triplex forming oligonucleotide, decoy RNA, dsRNA, siRNA, aptamer, or antisense nucleic acid containing nucleic acid cleaving chemical groups, is adapted to treat, control and/or diagnose tumor angiogenesis, cancers such as breast cancer, lung cancer, colorectal cancer, renal cancer, pancreatic cancer, or melanoma, ocular diseases or ocular indications, such as diabetic retinopathy, or age related macular degeneration, rhuematoid arthritis, psoriasis endometriosis, endometrial carcinoma, gynecologic bleeding disorders, irregular menstrual cycles, ovulation, premenstrual syndrome (PMS), or menopausal dysfunction.

Such nucleic acid molecules are also useful for the prevention of the diseases and conditions including diabetic retinopathy, macular degeneration, neovascular glaucoma, myopic degeneration, verruca vulgaris, angiofibroma of tuberous sclerosis, port-wine stains, Sturge Weber syndrome, Kippel-Trenaunay-Weber syndrome, Osler-Weber-Rendu syndrome

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and other diseases or conditions that are related to the levels of VEGFR1 or VEGFR2 in a cell or tissue.

In another embodiment, the invention features a composition in a pharmaceutically acceptable carrier or diluent, comprising the nucleic acid molecule of the instant invention.

In another embodiment, an enzymatic nucleic acid molecule, antisense nucleic acid molecule, 2-5A antisense chimera, triplex forming oligonucleotide, decoy RNA, dsRNA, siRNA, aptamer, or antisense nucleic acid containing nucleic acid cleaving chemical groups of the invention is adapted for birth control.

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In one embodiment, an enzymatic nucleic acid molecule of the invention is in a hammerhead, Inozyme, Zinzyme, DNAzyme, Amberzyme, or G-cleaver configuration.

In one embodiment, an enzymatic nucleic acid molecule of the invention comprises between 8 and 100 bases complementary to RNA of VEGFR1 and/or VEGFR2 gene. In another embodiment, an enzymatic nucleic acid molecule of the invention comprises between 14 and 24 bases complementary to RNA of VEGFR1 and/or VEGFR2 gene.

In one embodiment, a siRNA molecule of the invention comprises a double stranded RNA wherein one strand of the RNA is complementary to RNA of a VEGFR1 and/or VEGFR2 gene. In another embodiment, a siRNA molecule of the invention comprises a double stranded RNA wherein one strand of the RNA comprises a portion of a sequence of RNA having a VEGFR1 and/or VEGFR2 sequence. In yet another embodiment, a siRNA molecule of the invention comprises a double stranded RNA wherein both strands of RNA are connected by a non-nucleotide linker. Alternately, a siRNA molecule of the invention comprises a double stranded RNA wherein both strands of RNA are connected by a nucleotide linker, such as a loop or stem loop structure.

In one embodiment, a single strand component of a siRNA molecule of the invention is from about 14 to about 50 nucleotides in length. In another embodiment, a single strand component of a siRNA molecule of the invention is about 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, or 28 nucleotides in length. In yet another embodiment, a single strand component of a siRNA molecule of the invention is about 23 nucleotides in length. In one embodiment, a siRNA molecule of the invention is from about 28 to about 56 nucleotides in length. In another embodiment, a siRNA molecule of the invention is about 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, or 52 nucleotides in length. In yet another embodiment, a siRNA molecule of the invention is about 46 nucleotides in length.

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In one embodiment, an enzymatic nucleic acid molecule, antisense nucleic acid molecule, 2-5A antisense chimera, triplex forming oligonucleotide, decoy RNA, dsRNA, siRNA, aptamer, or antisense nucleic acid containing nucleic acid cleaving chemical groups of the invention is chemically synthesized.

In another embodiment, an enzymatic nucleic acid molecule, antisense nucleic acid molecule, 2-5A antisense chimera, triplex forming oligonucleotide, decoy RNA, dsRNA, siRNA, aptamer, or antisense nucleic acid containing nucleic acid cleaving chemical groups of the invention comprises at least one 2'-sugar modification.

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In another embodiment, an enzymatic nucleic acid molecule, antisense nucleic acid molecule, 2-5A antisense chimera, triplex forming oligonucleotide, decoy RNA, dsRNA, siRNA, aptamer, or antisense nucleic acids containing nucleic acid cleaving chemical groups of the invention comprises at least one nucleic acid base modification.

In another embodiment, an enzymatic nucleic acid molecule, antisense nucleic acid molecule, 2-5A antisense chimera, triplex forming oligonucleotide, decoy RNA, dsRNA, siRNA, aptamer, or antisense nucleic acid containing nucleic acid cleaving chemical groups of the invention comprises at least one phosphate backbone modification.

In one embodiment, the invention features a mammalian cell, for example a human cell, comprising a nucleic acid molecule of the invention.

In another embodiment, the invention features a method of reducing VEGF and/or VEGFr, such as VEGFR1 and/or VEGFR2 expression or activity in a cell comprising contacting the cell with a nucleic acid molecule of the invention that modulates the expression and/or activity of VEGF and/or VEGFr, under conditions suitable for the reduction.

In another embodiment, a method of treatment of a subject having a condition associated with the level of VEGF and/or VEGFr, such as VEGFR1 and/or VEGFR2 is featured, wherein the method further comprises the use of one or more drug therapies under conditions suitable for the treatment.

In one embodiment, the invention features a method for treatment of a subject having tumor angiogenesis, tumor angiogenesis, cancers including but not limited to tumor and cancer types shown under Diagnosis in Table III, ocular diseases or ocular indications such as diabetic retinopathy, or age related macular degeneration, rhuematoid arthritis, psoriasis and/or endometriosis, endometrial carcinoma, gynecologic bleeding disorders, irregular

menstrual cycles, ovulation, premenstrual syndrome (PMS), or menopausal dysfunction, comprising administering to the subject a nucleic acid molecule of the invention that modulates the expression and/or activity of VEGF and/or VEGFr under conditions suitable for the treatment.

In another embodiment, the invention features a method for birth control in a subject comprising administering to the subject a nucleic acid molecule of the invention that modulates the expression and/or activity of VEGF and/or VEGFr under conditions suitable for the treatment.

In another embodiment, the invention features a method of cleaving RNA encoded by a VEGF, VEGFR1 and/or VEGFR2 gene comprising contacting an enzymatic nucleic acid molecule of the invention having endonuclease activity with RNA encoded by a VEGFR1 and/or VEGFR2 gene under conditions suitable for the cleavage, for example, wherein the cleavage is carried out in the presence of a divalent cation, such as Mg²⁺.

In one embodiment, a nucleic acid molecule of the invention comprises a cap structure, for example a 3',3'-linked or 5',5'-linked deoxyabasic ribose derivative, wherein the cap structure is at the 5'-end, or 3'-end, or both the 5'-end and the 3'-end of the enzymatic nucleic acid molecule.

In another embodiment, a nucleic acid molecule of the invention comprises a cap structure, for example a 3',3'-linked or 5',5'-linked deoxyabasic ribose derivative, wherein the cap structure is at the 5'-end, or 3'-end, or both the 5'-end and the 3'-end of the antisense nucleic acid molecule.

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In one embodiment, the invention features an expression vector comprising a nucleic acid sequence encoding at least one nucleic acid molecule of the invention such that the vector allows expression of the nucleic acid molecule.

In another embodiment, the invention features a mammalian cell, for example, a human cellcomprising an expression vector of the invention.

In yet another embodiment, an expression vector of the invention further comprises a sequence for a nucleic acid molecule complementary to RNA encoded by a VEGF and/or VEGFR, such as VEGFR1 and/or VEGFR2 gene.

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In one embodiment, an expression vector of the invention comprises a nucleic acid sequence encoding two or more nucleic acid molecules of the invention, which can be the same or different.

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In another embodiment, the invention features a method for treatment or control of tumor angiogenesis, cancers such as breast cancer, lung cancer, colorectal cancer, renal cancer, pancreatic cancer, or melanoma, or ocular indications such as diabetic retinopathy, or age related macular degeneration, and/or endometriosis, endometrial carcinoma, gynecologic bleeding disorders, irregular menstrual cycles, ovulation, premenstrual syndrome (PMS), or menopausal dysfunction, comprising administering to a subject a nucleic acid molecule of the invention that modulates the expression and/or activity of VEGF and/or VEGFr, such as an enzymatic nucleic acid molecule, antisense nucleic acid molecule, 2-5A antisense chimera, triplex forming oligonucleotide, decoy RNA, dsRNA, siRNA, aptamer, or antisense nucleic acid containing nucleic acid cleaving chemical groups of the invention, under conditions suitable for the treatment, including administering to the subject one or more other therapies, for example, 5-fluoro uridine, Leucovorin, Irinotecan (CAMPTOSAR® or CPT-11 or Camptothecin-11 or Campto), Paclitaxel, or Carboplatin.GnRH (gonadotropin releasing hormone) agonists, Lupron Depot (Leuprolide Acetate), Synarel (naferalin acetate), Zolodex (goserelin acetate), Suprefact (buserelin acetate), Danazol, or oral contraceptives including but not limited to Depo-Provera or Provera (medroxyprogesterone acetate), or any other estrogen/progesterone contraceptive.

In one embodiment, the method of treatment features a nucleic acid molecule of the invention, such as an enzymatic nucleic acid or antisense nucleic acid molecule, that comprises at least five ribose residues, at least ten 2'-O-methyl modifications, and a 3'- end modification, such as a 3'-3' inverted abasic moiety. In another embodiment, a nucleic acid molecule of the invention further comprises phosphorothioate linkages on at least three of the 5' terminal nucleotides.

In another embodiment, the invention features a method of administering to a mammal, for example a human, an enzymatic nucleic acid molecule, antisense nucleic acid molecule, 2-5A antisense chimera, triplex forming oligonucleotide, decoy RNA, dsRNA, siRNA, aptamer, or antisense nucleic acid containing nucleic acid cleaving chemical groups of the invention, comprising contacting the mammal with the nucleic acid molecule under conditions suitable for the administration, for example, in the presence of a delivery reagent such as a lipid, cationic lipid, phospholipid, or liposome.

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In yet another embodiment, the invention features a method of administering to a mammal an enzymatic nucleic acid molecule, antisense nucleic acid molecule, 2-5A antisense chimera, triplex forming oligonucleotide, decoy RNA, dsRNA, siRNA, aptamer, or antisense nucleic acid containing nucleic acid cleaving chemical groups of the invention in conjunction with other therapies, comprising contacting the mammal, for example a human, with the nucleic acid molecule and the other therapy under conditions suitable for the administration.

In another embodiment, other therapies contemplated by the instant invention that can be used in conjunction with the nucleic acid molecules of the instant invention include, but are not limited to, 5-fluoro uridine, Leucovorin, Irinotecan (CAMPTOSAR® or CPT-11 or Camptothecin-11 or Campto), Paclitaxel, or Carboplatin, GnRH (gonadotropin releasing hormone) agonists, Lupron Depot (Leuprolide Acetate), Synarel (naferalin acetate), Zolodex (goserelin acetate), Suprefact (buserelin acetate), Danazol, or oral contraceptives including but not limited to Depo-Provera or Provera (medroxyprogesterone acetate), or other estrogen/progesterone contraceptive.

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In one embodiment, the invention features the use of an enzymatic nucleic acid molecule, to down-regulate the expression of VEGFR1 and/or VEGFR2 genes in the treatment or control of tumor angiogenesis, cancers such as breast cancer, lung cancer, colorectal cancer, renal cancer, pancreatic cancer, or melanoma, or ocular indications such as diabetic retinopathy, or age related macular degeneration, and/or endometriosis, endometrial carcinoma, gynecologic bleeding disorders, irregular menstrual cycles, ovulation, premenstrual syndrome (PMS), or menopausal dysfunction. Such enzymatic nucleic acid molecule can be in the hammerhead, NCH, G-cleaver, Amberzyme, Zinzyme, and/or DNAzyme motif.

In another embodiment, the invention features the use of an enzymatic nucleic acid moleculeto down-regulate the expression of VEGF and/or VEGFR, such as VEGFR1 and/or VEGFR2 genes, as a method of birth control. Such enzymatic nucleic acid molecule can be in the hammerhead, NCH, G-cleaver, Amberzyme, Zinzyme, and/or DNAzyme motif. In one embodiment, the nucleic acid molecules of the invention have complementarity to the substrate sequences in Tables V and VI. Examples of enzymatic nucleic acid molecules of the invention are shown in Tables V and VI. Examples of such enzymatic nucleic acid molecules consist essentially of sequences defined in these Tables.

By "inhibit", "down-regulate", or "reduce", it is meant that the expression of the gene, or level of nucleic acids or equivalent nucleic acids encoding one or more proteins or protein subunits, or activity of one or more proteins or protein subunits, such as VEGFR1, VEGFR2

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and/or flk-1, is reduced below that observed in the absence of the nucleic acid molecules of the invention. In one embodiment, inhibition, down-regulation or reduction with enzymatic nucleic acid molecule preferably is below that level observed in the presence of an enzymatically inactive or attenuated molecule that is able to bind to the same site on the target nucleic acid, but is unable to cleave that nucleic acid. In another embodiment, inhibition, down-regulation, or reduction with antisense oligonucleotides is preferably below that level observed in the presence of, for example, an oligonucleotide with scrambled sequence or with mismatches. In another embodiment, inhibition, down-regulation, or reduction of VEGF and/or VEGFr, such as VEGFR1 and/or VEGFR2 with the nucleic acid molecule of the instant invention is greater in the presence of the nucleic acid molecule than in its absence.

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By "up-regulate" is meant that the expression of a gene, or level of nucleic acids or equivalent nucleic acids encoding one or more proteins or protein subunits, or activity of one or more proteins or protein subunits, such as VEGFR1 and/or VEGFR2, is greater than that observed in the absence of the nucleic acid molecules of the invention. For example, the expression of a gene, such as VEGF and/or VEGFR, such as VEGFR1 and/or VEGFR2 gene, can be increased in order to treat, prevent, ameliorate, or modulate a pathological condition caused or exacerbated by an absence or low level of gene expression.

By "modulate" is meant that the expression of a gene, or level of nucleic acids or equivalent nucleic acids encoding one or more proteins or protein subunits, or activity of one or more proteins protein subunit(s) is up-regulated or down-regulated, such that the expression, level, or activity is greater than or less than that observed in the absence of the nucleic acid molecules of the invention.

By "enzymatic nucleic acid molecule" it is meant a nucleic acid molecule which has complementarity in a substrate binding region to a specified gene target, and also has an enzymatic activity which is active to specifically cleave a target nucleic acid. That is, the enzymatic nucleic acid molecule is able to intermolecularly cleave a nucleic acid and thereby inactivate a target nucleic acid molecule. These complementary regions allow sufficient hybridization of the enzymatic nucleic acid molecule to the target nucleic acid and thus permit cleavage. One hundred percent complementarity is preferred, but complementarity as low as 50-75% can also be useful in this invention (see for example Werner and Uhlenbeck, 1995, Nucleic Acids Research, 23, 2092-2096; Hammann et al., 1999, Antisense and Nucleic Acid Drug Dev., 9, 25-31). The nucleic acids can be modified at the base, sugar, and/or phosphate groups. The term enzymatic nucleic acid is used interchangeably with phrases such

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as ribozyme, catalytic RNA, enzymatic RNA, catalytic DNA, aptazyme or aptamer-binding ribozyme, regulatable ribozyme, catalytic oligonucleotides, nucleozyme, DNAzyme, RNA enzyme, endoribonuclease, endonuclease, minizyme, leadzyme, oligozyme or DNA enzyme. All of these terminologies describe nucleic acid molecules with enzymatic activity. The specific enzymatic nucleic acid molecules described in the instant application are not limiting in the invention and those skilled in the art will recognize that all that is important in an enzymatic nucleic acid molecule of this invention is that it has a specific substrate binding site which is complementary to one or more of the target nucleic acid regions, and that it have nucleotide sequences within or surrounding that substrate binding site which impart a nucleic acid cleaving and/or ligation activity to the molecule (Cech et al., U.S. Patent No. 4,987,071; Cech et al., 1988, 260 JAMA 3030).

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Several varieties of naturally-occurring enzymatic nucleic acids are known presently. Each can catalyze the hydrolysis of nucleic acid phosphodiester bonds in trans (and thus can cleave other nucleic acid molecules) under physiological conditions. Table I summarizes some of the characteristics of these ribozymes. In general, enzymatic nucleic acids act by first binding to a target nucleic acid. Such binding occurs through the target binding portion of a enzymatic nucleic acid which is held in close proximity to an enzymatic portion of the molecule that acts to cleave the target nucleic acid. Thus, the enzymatic nucleic acid first recognizes and then binds a target nucleic acid through complementary base-pairing, and once bound to the correct site, acts enzymatically to cut the target nucleic acid. Strategic cleavage of such a target nucleic acid will destroy its ability to direct synthesis of an encoded protein. After an enzymatic nucleic acid has bound and cleaved its nucleic acid target, it is released from that nucleic acid to search for another target and can repeatedly bind and cleave new targets. Thus, a single ribozyme molecule is able to cleave many molecules of target nucleic acid. In addition, the ribozyme is a highly specific inhibitor of gene expression, with the specificity of inhibition depending not only on the base-pairing mechanism of binding to the target nucleic acid, but also on the mechanism of target nucleic acid cleavage. Single mismatches, or base-substitutions, near the site of cleavage can completely eliminate catalytic activity of a ribozyme.

In one embodiment of the inventions described herein, an enzymatic nucleic acid molecule of the invention is formed in a hammerhead or hairpin motif, but can also be formed in the motif of a hepatitis delta virus, group I intron, group II intron or RNase P RNA (in association with an RNA guide sequence), Neurospora VS RNA, DNAzymes, NCH cleaving motifs, or G-cleavers. Examples of such hammerhead motifs are described by Dreyfus, supra, Rossi et al., 1992, AIDS Research and Human Retroviruses 8, 183; of hairpin motifs

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by Hampel et al., EP0360257, Hampel and Tritz, 1989 Biochemistry 28, 4929, Feldstein et al., 1989, Gene 82, 53, Haseloff and Gerlach, 1989, Gene, 82, 43, and Hampel et al., 1990 Nucleic Acids Res. 18, 299; Chowrira & McSwiggen, US, Patent No. 5,631,359; an examples of a hepatitis delta virus motif is described by Perrotta and Been, 1992 Biochemistry 31, 16; examples of RNase P motifs are described by Guerrier-Takada et al., 1983 Cell 35, 849; Forster and Altman, 1990, Science 249, 783; Li and Altman, 1996, Nucleic Acids Res. 24, 835; examples of Neurospora VS RNA ribozyme motifs are described by Collins (Saville and Collins, 1990 Cell 61, 685-696; Saville and Collins, 1991 Proc. Natl. Acad. Sci. USA 88, 8826-8830; Collins and Olive, 1993 Biochemistry 32, 2795-2799; Guo and Collins, 1995, EMBO. J. 14, 363); examples of Group II introns are described by Griffin et al., 1995, Chem. Biol. 2, 761; Michels and Pyle, 1995, Biochemistry 34, 2965; Pyle et al., International PCT Publication No. WO 96/22689; an example of a Group I intron is described by Cech et al., U.S. Patent 4,987,071; and examples of DNAzymes are described by Usman et al. International PCT Publication No. WO 95/11304; Chartrand et al., 1995, NAR 23, 4092; Breaker et al., 1995, Chem. Bio. 2, 655; Santoro et al., 1997, PNAS 94, 4262, and Beigelman et al., International PCT publication No. WO 99/55857. NCH cleaving motifs are described in Ludwig & Sproat, International PCT Publication No. WO 98/58058; and G-cleavers are described in Kore et al., 1998, Nucleic Acids Research 26, 4116-4120 and Eckstein et al., International PCT Publication No. WO 99/16871. Additional motifs such as the Aptazyme (Breaker et al., WO 98/43993), Amberzyme (Beigelman et al., U.S. Serial No. 09/301,511) and Zinzyme (Figure 7) (Beigelman et al., U.S. Serial No. 09/918,728), all included by reference herein including drawings, can also be used in the present invention. These specific motifs or configurations are not limiting in the invention and those skilled in the art will recognize that all that is important in an enzymatic nucleic acid molecule of this invention is that it have a specific substrate binding site which is complementary to one or more of the target gene RNA regions, and that it have nucleotide sequences within or surrounding that substrate binding site which impart a RNA cleaving activity to the molecule (Cech et al., U.S. Patent No. 4,987,071).

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By "nucleic acid molecule" as used herein is meant a molecule having nucleotides. The nucleic acid can be single, double, or multiple stranded and can comprise modified or unmodified nucleotides or non-nucleotides or various mixtures and combinations thereof.

By "enzymatic portion" or "catalytic domain" is meant that portion/region of a enzymatic nucleic acid molecule essential for cleavage of a nucleic acid substrate (for example see Figure 6).

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By "substrate binding arm" or "substrate binding domain" is meant that portion/region of a enzymatic nucleic acid which is able to interact, for example via complementarity (i.e., able to base-pair with), with a portion of its substrate. Preferably, such complementarity is 100%, but can be less if desired. For example, as few as 10 bases out of 14 can be base-paired (see for example Werner and Uhlenbeck, 1995, Nucleic Acids Research, 23, 2092-2096; Hammann et al., 1999, Antisense and Nucleic Acid Drug Dev., 9, 25-31). Examples of such arms are shown generally in Figures 6-8. That is, these arms contain sequences within a enzymatic nucleic acid which are intended to bring enzymatic nucleic acid and target nucleic acid together through complementary base-pairing interactions. An enzymatic nucleic acid of the invention can have binding arms that are contiguous or non-contiguous and can be of varying lengths. The length of the binding arm(s) are preferably greater than or equal to four nucleotides and of sufficient length to stably interact with the target nucleic acid; preferably 12-100 nucleotides; more preferably 14-24 nucleotides long (see for example Werner and Uhlenbeck, supra; Hamman et al., supra; Hampel et al., EP0360257; Berzal-Herranz et al., 1993, EMBO J., 12, 2567-73) or between 8 and 14 nucleotides long. If two binding arms are chosen, the design is such that the length of the binding arms are symmetrical (i.e., each of the binding arms is of the same length; e.g., four and four, five and five nucleotides, or six and six nucleotides, or seven and seven nucleotides long) or asymmetrical (i.e., the binding arms are of different length; e.g., three and five, six and three nucleotides; three and six nucleotides long; four and five nucleotides long; four and six nucleotides long; four and seven nucleotides long; and the like).

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By "Inozyme" or "NCH" motif or configuration is meant, an enzymatic nucleic acid molecule comprising a motif as is generally described as NCH Rz in Figure 6 and in Ludwig et al., International PCT Publication No. WO 98/58058 and US Patent Application Serial No. 08/878,640. Inozymes possess endonuclease activity to cleave nucleic acid substrates having a cleavage triplet NCH/, where N is a nucleotide, C is cytidine and H is adenosine, uridine or cytidine, and "/" represents the cleavage site. H is used interchangeably with X. Inozymes can also possess endonuclease activity to cleave nucleic acid substrates having a cleavage triplet NCN/, where N is a nucleotide, C is cytidine, and "/" represents the cleavage site. "T" in Figure 6 represents an Inosine nucleotide, preferably a ribo-Inosine or xylo-Inosine nucleoside.

By "G-cleaver" motif or configuration is meant, an enzymatic nucleic acid molecule comprising a motif as is generally described as G-cleaver Rz in Figure 6 and in Eckstein et al., US 6,127,173. G-cleavers possess endonuclease activity to cleave nucleic acid substrates having a cleavage triplet NYN/, where N is a nucleotide, Y is uridine or cytidine and "/"

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represents the cleavage site. G-cleavers can be chemically modified as is generally shown in Figure 6.

By "amberzyme" motif or configuration is meant, an enzymatic nucleic acid molecule comprising a motif as is generally described in Beigelman et al., International PCT publication No. WO 99/55857 and US Patent Application Serial No. 09/476,387. Amberzymes possess endonuclease activity to cleave nucleic acid substrates having a cleavage triplet NG/N, where N is a nucleotide, G is guanosine, and "/" represents the cleavage site. Amberzymes can be chemically modified to increase nuclease stability through substitutions using modified nucleotides. In addition, differing nucleoside and/or non-nucleoside linkers can be used to substitute the 5'-gaaa-3' loops shown in the figure. Amberzymes represent a non-limiting example of an enzymatic nucleic acid molecule that does not require a ribonucleotide (2'-OH) group within its own nucleic acid sequence for activity.

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By "zinzyme" motif or configuration is meant, an enzymatic nucleic acid molecule comprising a motif as is generally described in Figure 7 and in Beigelman et al., International PCT publication No. WO 99/55857 and US Patent Application Serial No. 09/918,728. Zinzymes possess endonuclease activity to cleave nucleic acid substrates having a cleavage triplet including but not limited to YG/Y, where Y is uridine or cytidine, and G is guanosine and "/" represents the cleavage site. Zinzymes can be chemically modified to increase nuclease stability through substitutions as are generally shown in Figure 7, including substituting 2'-O-methyl guanosine nucleotides for guanosine nucleotides. In addition, differing nucleotide and/or non-nucleotide linkers can be used to substitute the 5'-gaaa-2' loop shown in the figure. Zinzymes represent a non-limiting example of an enzymatic nucleic acid molecule that does not require a ribonucleotide (2'-OH) group within its own nucleic acid sequence for activity.

By 'DNAzyme' is meant, an enzymatic nucleic acid molecule that does not require the presence of a 2'-OH group within its own nucleic acid sequence for activity. In particular embodiments the enzymatic nucleic acid molecule can have an attached linker or linkers or other attached or associated groups, moieties, or chains containing one or more nucleotides with 2'-OH groups. DNAzymes can be synthesized chemically or expressed endogenously in vivo, by means of a single stranded DNA vector or equivalent thereof. An example of a DNAzyme is shown in Figure 8 and is generally reviewed in Usman et al., US patent No., 6,159,714; Chartrand et al., 1995, NAR 23, 4092; Breaker et al., 1995, Chem. Bio. 2, 655; Santoro et al., 1997, PNAS 94, 4262; Breaker, 1999, Nature Biotechnology, 17, 422-423; and

Santoro et. al., 2000, J. Am. Chem. Soc., 122, 2433-39. The "10-23" DNAzyme motif is one particular type of DNAzyme that was evolved using in vitro selection, see Santoro et al., supra and as generally described in Joyce et al., US 5,807,718. Additional DNAzyme motifs can be selected for using techniques similar to those described in these references, and hence, are within the scope of the present invention.

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By "sufficient length" is meant a nucleic acid molecule of the invention is long enough to provide the intended function under the expected condition. For example, a nucleic acid molecule of the invention needs to be of "sufficient length" to provide stable interaction with a target nucleic acid molecule under the expected binding conditions and environment. In another non-limiting example, for the binding arms of an enzymatic nucleic acid, "sufficient length" means that the binding arm sequence is long enough to provide stable binding to a target site under the expected reaction conditions and environment. The binding arms are not so long as to prevent useful turnover of the nucleic acid molecule.

By "stably interact" is meant interaction of an oligonucleotides with target nucleic acid (e.g., by forming hydrogen bonds with complementary nucleotides in the target under physiological conditions) that is sufficient to the intended purpose (e.g., cleavage of target nucleic acid by an enzyme).

By "equivalent" RNA to VEGF, VEGFR1 and/or VEGFR2 is meant to include nucleic acid molecules having homology (partial or complete) to a nucleic acid encoding VEGF, VEGFR1 and/or VEGFR2 proteins or encoding proteins with similar function as VEGF, VEGFR1 and/or VEGFR2 proteins in various organisms, including human, rodent, primate, rabbit, pig, protozoans, fungi, plants, and other microorganisms and parasites. The equivalent nucleic acid sequence also includes, in addition to the coding region, regions such as 5'-untranslated region, 3'-untranslated region, intron-exon junction and the like.

By "homology" is meant the nucleotide sequence of two or more nucleic acid molecules is partially or completely identical.

By "antisense nucleic acid", it is meant a non-enzymatic nucleic acid molecule that binds to target nucleic acid by means of RNA-RNA or RNA-DNA or RNA-PNA (protein nucleic acid; Egholm et al., 1993 Nature 365, 566) interactions and alters the activity of the target nucleic acid (for a review, see Stein and Cheng, 1993 Science 261, 1004 and Woolf et al., US patent No. 5,849,902). Typically, antisense molecules are complementary to a target sequence along a single contiguous sequence of the antisense molecule. However, in certain embodiments, an antisense molecule can bind to substrate such that the substrate molecule

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forms a loop, and/or an antisense molecule can bind such that the antisense molecule forms a loop. Thus, an antisense molecule can be complementary to two (or even more) non-contiguous substrate sequences or two (or even more) non-contiguous sequence portions of an antisense molecule can be complementary to a target sequence or both. For a review of current antisense strategies, see Schmajuk et al., 1999, J. Biol. Chem., 274, 21783-21789, Delihas et al., 1997, Nature, 15, 751-753, Stein et al., 1997, Antisense N. A. Drug Dev., 7, 151, Crooke, 2000, Methods Enzymol., 313, 3-45; Crooke, 1998, Biotech. Genet. Eng. Rev., 15, 121-157, Crooke, 1997, Ad. Pharmacol., 40, 1-49. In addition, antisense DNA can be used to target nucleic acid by means of DNA-RNA interactions, thereby activating RNase H, which digests the target nucleic acid in the duplex. The antisense oligonucleotides can comprise one or more RNAse H activating region, which is capable of activating RNAse H cleavage of a target nucleic acid. Antisense DNA can be synthesized chemically or expressed via the use of a single stranded DNA expression vector or equivalent thereof.

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By "RNase H activating region" is meant a region (generally greater than or equal to 4-25 nucleotides in length, preferably from 5-11 nucleotides in length) of a nucleic acid molecule capable of binding to a target nucleic acid to form a non-covalent complex that is recognized by cellular RNase H enzyme (see for example Arrow et al., US 5,849,902; Arrow et al., US 5,989,912). The RNase H enzyme binds to a nucleic acid molecule-target nucleic acid complex and cleaves the target nucleic acid sequence. The RNase H activating region comprises, for example, phosphodiester, phosphorothioate (preferably at least four of the nucleotides are phosphorothiote substitutions; more specifically, 4-11 of the nucleotides are phosphorothiote substitutions); phosphorodithioate, 5'-thiophosphate, or methylphosphonate backbone chemistry or a combination thereof. In addition to one or more backbone chemistries described above, the RNase H activating region can also comprise a variety of sugar chemistries. For example, the RNase H activating region can comprise deoxyribose, arabino, fluoroarabino or a combination thereof, nucleotide sugar chemistry. Those skilled in the art will recognize that the foregoing are non-limiting examples and that any combination of phosphate, sugar and base chemistry of a nucleic acid that supports the activity of RNase H enzyme is within the scope of the definition of the RNase H activating region and the instant invention.

By "2-5A antisense chimera" is meant an antisense oligonucleotide containing a 5'-phosphorylated 2'-5'-linked adenylate residue. These chimeras bind to target nucleic acid in a sequence-specific manner and activate a cellular 2-5A-dependent ribonuclease which, in turn, cleaves the target nucleic acid (Torrence et al., 1993 Proc. Natl. Acad. Sci. USA 90, 1300;

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Silverman et al., 2000, Methods Enzymol., 313, 522-533; Player and Torrence, 1998, Pharmacol. Ther., 78, 55-113).

By "triplex forming oligonucleotides" is meant an oligonucleotide that can bind to a double-stranded polynucleotide, such as DNA, in a sequence-specific manner to form a triple-strand helix. Formation of such triple helix structure has been shown to inhibit transcription of the targeted gene (Duval-Valentin et al., 1992 Proc. Natl. Acad. Sci. USA 89, 504; Fox, 2000, Curr. Med. Chem., 7, 17-37; Praseuth et. al., 2000, Biochim. Biophys. Acta, 1489, 181-206).

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By "gene" it is meant a nucleic acid that encodes an RNA, for example, nucleic acid sequences including but not limited to structural genes encoding a polypeptide.

The term "complementarity" as used herein refers to the ability of a nucleic acid to form hydrogen bond(s) with another nucleic acid sequence by either traditional Watson-Crick or other non-traditional types. In reference to nucleic molecules of the present invention, the binding free energy for a nucleic acid molecule with its target or complementary sequence is sufficient to allow the relevant function of the nucleic acid to proceed, e.g., enzymatic nucleic acid cleavage, antisense or triple helix inhibition. Determination of binding free energies for nucleic acid molecules is well known in the art (see, e.g., Turner et al., 1987, CSH Symp. Quant. Biol. LII pp.123-133; Frier et al., 1986, Proc. Nat. Acad. Sci. USA 83:9373-9377; Turner et al., 1987, J. Am. Chem. Soc. 109:3783-3785). A percent complementarity indicates the percentage of contiguous residues in a nucleic acid molecule which can form hydrogen bonds (e.g., Watson-Crick base pairing) with a second nucleic acid sequence (e.g., 5, 6, 7, 8, 9, 10 out of 10 being 50%, 60%, 70%, 80%, 90%, and 100% complementary). "Perfectly complementary" means that all the contiguous residues of a nucleic acid sequence will hydrogen bond with the same number of contiguous residues in a second nucleic acid sequence.

By "RNA" is meant a molecule comprising at least one ribonucleotide residue. By "ribonucleotide" or "2'-OH" is meant a nucleotide with a hydroxyl group at the 2' position of a β -D-ribo-furanose moiety.

By "nucleic acid decoy molecule", or "decoy" as used herein is meant a nucleic acid molecule that mimics the natural binding domain for a ligand. The decoy therefore competes with the natural binding target for the binding of a specific ligand. For example, it has been shown that over-expression of HIV trans-activation response (TAR) RNA can act as a

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"decoy" and efficiently binds HIV tat protein, thereby preventing it from binding to TAR sequences encoded in the HIV RNA (Sullenger et al., 1990, *Cell*, 63, 601-608).

By "aptamer" or "nucleic acid aptamer" as used herein is meant a nucleic acid molecule that binds specifically to a target molecule wherein the nucleic acid molecule has sequence that is distinct from sequence recognized by the target molecule in its natural setting. Alternately, an aptamer can be a nucleic acid molecule that binds to a target molecule where the target molecule does not naturally bind to a nucleic acid. The target molecule can be any molecule of interest. For example, the aptamer can be used to bind to a ligand binding domain of a protein, thereby preventing interaction of the naturally occurring ligand with the protein. Similarly, the nucleic acid molecules of the instant invention can bind to VEGFR1 or VEGFR2 receptors to block activity of the receptor. This is a non-limiting example and those in the art will recognize that other embodiments can be readily generated using techniques generally known in the art, see for example Gold *et al.*, US 5,475,096 and 5,270,163; Gold *et al.*, 1995, *Annu. Rev. Biochem.*, 64, 763; Brody and Gold, 2000, *J. Biotechnol.*, 74, 5; Sun, 2000, *Curr. Opin. Mol. Ther.*, 2, 100; Kusser, 2000, *J. Biotechnol.*, 74, 27; Hermann and Patel, 2000, *Science*, 287, 820; and Jayasena, 1999, *Clinical Chemistry*, 45, 1628.

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The term "double stranded RNA" or "dsRNA" as used herein refers to a double stranded RNA molecule capable of RNA interference "RNAi", including short interfering RNA "siRNA" see for example Bass, 2001, Nature, 411, 428-429; Elbashir et al., 2001, Nature, 411, 494-498; and Kreutzer et al., International PCT Publication No. WO 00/44895; Zernicka-Goetz et al., International PCT Publication No. WO 01/36646; Fire, International PCT Publication No. WO 99/32619; Plaetinck et al., International PCT Publication No. WO 00/01846; Mello and Fire, International PCT Publication No. WO 01/29058; Deschamps-Depaillette, International PCT Publication No. WO 99/07409; and Li et al., International PCT Publication No. WO 00/44914.

By "nucleic acid sensor molecule" or "allozyme" as used herein is meant a nucleic acid molecule comprising an enzymatic domain and a sensor domain, where the enzymatic nucleic acid domain's ability to catalyze a chemical reaction is dependent on the interaction with a target signaling molecule, such as a nucleic acid, polynucleotide, oligonucleotide, peptide, polypeptide, or protein, for example VEGF, VEGFR1 and/or VEGFR2. The introduction of chemical modifications, additional functional groups, and/or linkers, to the nucleic acid sensor molecule can provide enhanced catalytic activity of the nucleic acid sensor molecule, increased binding affinity of the sensor domain to a target nucleic acid, and/or improved nuclease/chemical stability of the nucleic acid sensor molecule, and are

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hence within the scope of the present invention (see for example Usman et al., US Patent Application No. 09/877,526, George et al., US Patent Nos. 5,834,186 and 5,741,679, Shih et al., US Patent No. 5,589,332, Nathan et al., US Patent No 5,871,914, Nathan and Ellington, International PCT publication No. WO 00/24931, Breaker et al., International PCT Publication Nos. WO 00/26226 and 98/27104, and Sullenger et al., US Patent Application Serial No. 09/205,520).

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By "sensor component" or "sensor domain" of the nucleic acid sensor molecule as used herein is meant, a nucleic acid sequence (e.g., RNA or DNA or analogs thereof) which interacts with a target signaling molecule, for example a nucleic acid sequence in one or more regions of a target nucleic acid molecule or more than one target nucleic acid molecule, and which interaction causes the enzymatic nucleic acid component of the nucleic acid sensor molecule to either catalyze a reaction or stop catalyzing a reaction. In the presence of target signaling molecule of the invention, such as VEGF, VEGFR1 and/or VEGFR2, the ability of the sensor component, for example, to modulate the catalytic activity of the nucleic acid sensor molecule, is inhibited or diminished. The sensor component can comprise recognition properties relating to chemical or physical signals capable of modulating the nucleic acid sensor molecule via chemical or physical changes to the structure of the nucleic acid sensor molecule. The sensor component can be derived from a naturally occurring nucleic acid binding sequence, for example, RNAs that bind to other nucleic acid sequences in vivo. Alternately, the sensor component can be derived from a nucleic acid molecule (aptamer) which is evolved to bind to a nucleic acid sequence within a target nucleic acid molecule (see for example Gold et al., US 5,475,096 and 5,270,163). The sensor component can be covalently linked to the nucleic acid sensor molecule, or can be non-covalently associated. A person skilled in the art will recognize that all that is required is that the sensor component is able to selectively inhibit the activity of the nucleic acid sensor molecule to catalyze a reaction.

By "target molecule" or "target signaling molecule" is meant a molecule capable of interacting with a nucleic acid sensor molecule, specifically a sensor domain of a nucleic acid sensor molecule, in a manner that causes the nucleic acid sensor molecule to be active or inactive. The interaction of the signaling agent with a nucleic acid sensor molecule can result in modification of the enzymatic nucleic acid component of the nucleic acid sensor molecule via chemical, physical, topological, or conformational changes to the structure of the molecule, such that the activity of the enzymatic nucleic acid component of the nucleic acid sensor molecule is modulated, for example is activated or deactivated. Signaling agents can comprise target signaling molecules such as macromolecules, ligands, small molecules.

metals and ions, nucleic acid molecules including but not limited to RNA and DNA or analogs thereof, proteins, peptides, antibodies, polysaccharides, lipids, sugars, microbial or cellular metabolites, pharmaceuticals, and organic and inorganic molecules in a purified or unpurified form, for example VEGF, VEGFR1 and/or VEGFR2.

The term "triplex forming oligonucleotides" as used herein refers to an oligonucleotide that can bind to a double-stranded DNA in a sequence-specific manner to form a triple-strand helix. Formation of such a triple helix structure has been shown to inhibit transcription of a targeted gene (Duval-Valentin et al., 1992 Proc. Natl. Acad. Sci. USA 89, 504; Fox, 2000, Curr. Med. Chem., 7, 17-37; Praseuth et. al., 2000, Biochim. Biophys. Acta, 1489, 181-206).

The nucleic acid molecules that modulate the expression of VEGF and/or VEGFr, such as VEGFR1 and/or VEGFR2 specific nucleic acids, represent a novel therapeutic approach to treat or control a variety of angiogenesis related disorders and conditions, including but not limited to tumor angiogenesis, cancers such as breast cancer, lung cancer, colorectal cancer, renal cancer, pancreatic cancer, or melanoma, or ocular indications such as diabetic retinopathy, or age related macular degeneration, and/or endometriosis, endometrial carcinoma, gynecologic bleeding disorders, irregular menstrual cycles, ovulation, premenstrual syndrome (PMS), and/or menopausal dysfunction. The nucleic acid molecules that modulate the expression of VEGF and/or VEGFr, such as VEGFR1 and/or VEGFR2 specific nucleic acids also represent a novel approach to control ovulation or embryonic implantation and therefore provide a novel means of birth control.

In one embodiment of the present invention, a nucleic acid molecule of the instant invention can be between 12 and 100 nucleotides in length. An exemplary enzymatic nucleic acid molecule of the invention is shown as Formula I and/or Formula II. For example, enzymatic nucleic acid molecules of the invention are preferably between 15 and 50 nucleotides in length, more preferably between 25 and 40 nucleotides in length, e.g., 34, 36, or 38 nucleotides in length (for example see Jarvis et al., 1996, J. Biol. Chem., 271, 29107-29112). Exemplary DNAzymes of the invention are preferably between 15 and 40 nucleotides in length, more preferably between 25 and 35 nucleotides in length, e.g., 29, 30, 31, or 32 nucleotides in length (see for example Santoro et al., 1998, Biochemistry, 37, 13330-13342; Chartrand et al., 1995, Nucleic Acids Research, 23, 4092-4096). Exemplary antisense molecules of the invention are preferably between 15 and 75 nucleotides in length, more preferably between 20 and 35 nucleotides in length, e.g., 25, 26, 27, or 28 nucleotides in length (see for example Woolf et al., 1992, PNAS., 89, 7305-7309; Milner et al., 1997, Nature Biotechnology, 15, 537-541). Exemplary triplex forming oligonucleotide molecules of the invention are preferably between 10 and 40 nucleotides in length, more preferably

between 12 and 25 nucleotides in length, e.g., 18, 19, 20, or 21 nucleotides in length (see for example Maher et al., 1990, Biochemistry, 29, 8820-8826; Strobel and Dervan, 1990, Science, 249, 73-75). Those skilled in the art will recognize that all that is required is that the nucleic acid molecule be of length and conformation sufficient and suitable for the nucleic acid molecule to catalyze a reaction contemplated herein. The length of the nucleic acid molecules of the instant invention are not limiting within the general limits stated.

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In a preferred embodiment, a nucleic acid molecule that modulates, for example, down-regulates, VEGF and/or VEGFr, such as VEGFR1 and/or VEGFR2 replication or expression comprises between 8 and 100 bases complementary to a nucleic acid molecule of VEGFR1 and/or VEGFR2. More preferably, a nucleic acid molecule that modulates VEGF and/or VEGFr, such as VEGFR1 and/or VEGFR2 replication or expression comprises between 14 and 24 bases complementary to a nucleic acid molecule of VEGFR1 and/or VEGFR2.

The invention provides a method for producing a class of nucleic acid-based gene modulating agents which exhibit a high degree of specificity for the nucleic acid of a desired target. For example, a nucleic acid molecule of the invention is preferably targeted to a highly conserved sequence region of target nucleic acids encoding VEGF and/or VEGFr, such as VEGFR1 and/or VEGFR2 (specifically VEGF, VEGFR1 and/or VEGFR2 genes) such that specific treatment of a disease or condition can be provided with either one or several nucleic acid molecules of the invention. Such nucleic acid molecules can be delivered exogenously to specific tissue or cellular targets as required. Alternatively, the nucleic acid molecules can be expressed from DNA and/or RNA vectors that are delivered to specific cells.

As used in herein "cell" is used in its usual biological sense, and does not refer to an entire multicellular organism. The cell can, for example, be in vitro, e.g., in cell culture, or present in a multicellular organism, including,, e.g., birds, plants and mammals such as humans, cows, sheep, apes, monkeys, swine, dogs, and cats. The cell may be prokaryotic (e.g., bacterial cell) or eukaryotic (e.g., mammalian or plant cell).

By "VEGFR1 and/or VEGFR2 proteins" is meant, protein receptor or a mutant protein derivative thereof, having vascular endothelial growth factor receptor activity, for example, having the ability to bind vascular endothelial growth factor and/or having tyrosine kinase activity.

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By "highly conserved sequence region" is meant, a nucleotide sequence of one or more regions in a target gene does not vary significantly from one generation to the other or from one biological system to the other.

"Angiogenesis" refers to formation of new blood vessels which is an essential process in reproduction, development and wound repair. "Tumor angiogenesis" refers to the induction of the growth of blood vessels from surrounding tissue into a solid tumor. Tumor growth and tumor metastasis are dependent on angiogenesis (for a review see Folkman, 1985 supra; Folkman 1990 J. Natl. Cancer Inst., 82, 4; Folkman and Shing, 1992 J. Biol. Chem. 267, 10931).

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Angiogenesis plays an important role in other diseases such as arthritis wherein new blood vessels have been shown to invade the joints and degrade cartilage (Folkman and Shing, *supra*).

"Retinopathy" refers to inflammation of the retina and/or degenerative condition of the retina which may lead to occlusion of the retina and eventual blindness. In "diabetic retinopathy" angiogenesis causes the capillaries in the retina to invade the vitreous resulting in bleeding and blindness which is also seen in neonatal retinopathy (for a review see Folkman, 1985 supra; Folkman 1990 supra; Folkman and Shing, 1992 supra).

Nucleic acid-based inhibitors of VEGF and/or VEGFr, such as VEGFR1 and/or VEGFR2, expression are useful for the prevention, treatment, and/or control of angiogenesis related disorders and conditions, including but not limited to, tumor angiogenesis, cancers such as breast cancer, lung cancer, colorectal cancer, renal cancer, pancreatic cancer, or melanoma, or ocular indications such as diabetic retinopathy, or age related macular degeneration, and/or endometriosis, endometrial carcinoma, gynecologic bleeding disorders, irregular menstrual cycles, ovulation, premenstrual syndrome (PMS), menopausal dysfunction, and other diseases or conditions that are related to or will respond to the levels of VEGF, VEGFR1 and/or VEGFR2 in a cell or tissue, alone or in combination with other therapies. The reduction of VEGF and/or VEGFr, such as VEGFR1 and/or VEGFR2 expression (specifically VEGF, VEGFR1 and/or VEGFR2 gene RNA levels) and thus reduction in the level of the respective protein relieves, to some degree, the symptoms of the disease or condition. Nucleic acid-based inhibitors of VEGF and/or VEGFr, such as VEGFR1 and/or VEGFR2 expression are also useful as birth control agents, for example by inhibition of ovulation or embryonic uterine implantation.

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The nucleic acid molecules of the invention can be added directly, or can be complexed with cationic lipids, packaged within liposomes, or otherwise delivered to target cells or tissues. The nucleic acid complexes can be locally administered to relevant tissues ex vivo, or in vivo through injection or infusion pump, with or without their incorporation in biopolymers. In preferred embodiments, the nucleic acid inhibitors comprise sequences, which are complementary to polynucleotides, for example DNA and RNA, having VEGF and/or VEGFR, such as VEGFR1 and/or VEGFR2 sequence.

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Triplex molecules of the invention can be provided targeted to DNA target regions, and containing the DNA equivalent of a target sequence or a sequence complementary to the specified target (substrate) sequence. Antisense molecules typically are complementary to a target sequence along a single contiguous sequence of the antisense molecule. However, in certain embodiments, an antisense molecule can bind to substrate such that the substrate molecule forms a loop, and/or an antisense molecule can bind such that the antisense molecule forms a loop. Thus, the antisense molecule can be complementary to two (or even more) non-contiguous substrate sequences or two (or even more) non-contiguous sequence portions of an antisense molecule can be complementary to a target sequence or both.

By "consists essentially of" is meant that the active nucleic acid molecule of the invention, for example, an enzymatic nucleic acid molecule, contains an enzymatic center or core equivalent to those in the examples, and binding arms able to bind nucleic acid such that cleavage at the target site occurs. Other sequences can be present which do not interfere with such cleavage. Thus, a core region can, for example, include one or more loop, stem-loop structure, or linker which does not prevent enzymatic activity. Thus, a particular region of a nucleic acid molecule of the invention can be such a loop, stem-loop, nucleotide linker, and/or non-nucleotide linker and can be represented generally as sequence "X". Thus, a core region may, for example, include one or more loop or stem-loop structures which do not prevent enzymatic activity. For example, a core sequence for a hammerhead enzymatic nncleic acid can comprise a conserved sequence, such as 5'-CUGAUGAG-3' and 5'-CGAA-3' connected by "X", where X is 5'-GCCGUUAGGC-3' (SEQ ID NO 5979), or any other Stem II region known in the art, or a nucleotide and/or non-nucleotide linker. Similarly, for other nucleic acid molecules of the instant invention, such as Inozyme, G-cleaver, amberzyme, zinzyme, DNAzyme, antisense, 2-5A antisense, triplex forming nucleic acid, aptamers, decoy nucleic acids, dsRNA or siRNA, other sequences or non-nucleotide linkers can be present that do not interfere with the function of the nucleic acid molecule.

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Sequence X can be a linker of ≥ 2 nucleotides in length, preferably 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 26, 30, where the nucleotides can preferably be internally base-paired to form a stem of preferably ≥ 2 base pairs. Alternatively or in addition, sequence X can be a non-nucleotide linker. In yet another embodiment, the nucleotide linker X can be a nucleic acid aptamer, such as an ATP aptamer, HIV Rev aptamer (RRE), HIV Tat aptamer (TAR) and others (for a review see Gold et al., 1995, Annu. Rev. Biochem., 64, 763; and Szostak & Ellington, 1993, in The RNA World, ed. Gesteland and Atkins, pp. 511, CSH Laboratory Press). A nucleic acid aptamer includes a nucleic acid sequence capable of interacting with a ligand. The ligand can be any natural or a synthetic molecule, including but not limited to a resin, metabolites, nucleosides, nucleic acid molecules, hormones, carbohydrates, receptors, cells, viruses, bacteria and others.

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In yet another embodiment, the non-nucleotide linker X is as defined herein. The term "non-nucleotide" as used herein include either abasic nucleotide, polyether, polyamine, polyamide, peptide, carbohydrate, lipid, or polyhydrocarbon compounds. Specific examples include those described by Seela and Kaiser, Nucleic Acids Res. 1990, 18:6353 and Nucleic Acids Res. 1987, 15:3113; Cload and Schepartz, J. Am. Chem. Soc. 1991, 113:6324; Richardson and Schepartz, J. Am. Chem. Soc. 1991, 113:5109; Ma et al., Nucleic Acids Res. 1993, 21:2585 and Biochemistry 1993, 32:1751; Durand et al., Nucleic Acids Res. 1990, 18:6353; McCurdy et al., Nucleosides & Nucleotides 1991, 10:287; Jschke et al., Tetrahedron Lett. 1993, 34:301; Ono et al., Biochemistry 1991, 30:9914; Arnold et al., International Publication No. WO 89/02439; Usman et al., International Publication No. WO 95/06731; Dudycz et al., International Publication No. WO 95/06731; Dudycz et al., International Publication No. WO 95/06731; Dudycz et al., International Publication No. WO 95/11910 and Ferentz and Verdine, J. Am. Chem. Soc. 1991, 113:4000, all hereby incorporated by reference herein.

A "non-nucleotide" further means any group or compound which can be incorporated into a nucleic acid chain in the place of one or more nucleotide units, including either sugar and/or phosphate substitutions, and allows the remaining bases to exhibit their enzymatic activity. The group or compound can be abasic in that it does not contain a commonly recognized nucleotide base, such as adenosine, gnanine, cytosine, uracil or thymine. Thus, in one embodiment, the invention features an enzymatic nucleic acid molecule having one or more non-nucleotide moieties, and having enzymatic activity to cleave an RNA or DNA molecule.

In another aspect of the invention, nucleic acid molecules that interact with target nucleic acid molecules and down-regulate VEGF and/or VEGFr, such as VEGFR1 and/or

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VEGFR2 (specifically VEGF, VEGFR1 and/or VEGFR2 gene) activity are expressed from transcription units inserted into DNA or RNA vectors. The recombinant vectors are preferably DNA plasmids or viral vectors. Enzymatic nucleic acid molecule or antisense expressing viral vectors can be constructed based on, but not limited to, adeno-associated virus, retrovirus, adenovirus, or alphavirus. The recombinant vectors capable of expressing the enzymatic nucleic acid molecules or antisense are delivered as described above, and persist in target cells. Alternatively, viral vectors can be used that provide for transient expression of enzymatic nucleic acid molecules or antisense. Such vectors can be repeatedly administered as necessary. Once expressed, the enzymatic nucleic acid molecules or antisense bind to the target nucleic acid and down-regulate its function or expression. Delivery of enzymatic nucleic acid molecule or antisense expressing vectors can be systemic, such as by intravenous or intramuscular administration, by administration to target cells explanted from the patient followed by reintroduction into the patient, or by any other means that would allow for introduction into the desired target cell. Antisense DNA can be expressed via the use of a single stranded DNA intracellular expression vector.

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By "vectors" is meant any nucleic acid- and/or viral-based technique used to deliver a desired nucleic acid.

By "subject" or "patient" is meant an organism, which is a donor or recipient of explanted cells, or the cells themselves. "Subject" or "Patient" also refers to an organism to which the nucleic acid molecules of the invention can be administered. Preferably, a subject or patient is a mammal or mammalian cells. More preferably, a subject or patient is a human or human cells.

By "enhanced enzymatic activity" is meant to include activity measured in cells and/or in vivo where the activity is a reflection of both the catalytic activity and the stability of the nucleic acid molecules of the invention. In this invention, the product of these properties can be increased *in vivo* compared to an all RNA enzymatic nucleic acid or all DNA enzyme. In some cases, the activity or stability of the nucleic acid molecule can be decreased (i.e., less than ten-fold), but the overall activity of the nucleic acid molecule is enhanced, *in vivo*.

The nucleic acid molecules of the instant invention, individually, or in combination or in conjunction with other drugs, can be used to treat diseases or conditions discussed above. For example, to treat a disease or condition associated with the levels of VEGFR1 and/or VEGFR2, the patient can be treated, or other appropriate cells can be treated, as is evident to those skilled in the art, individually or in combination with one or more drugs under conditions suitable for the treatment.

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In a further embodiment, the described molecules of the invention can be used in combination with other known treatments to treat conditions or diseases discussed above. For example, the described molecules can be used in combination with one or more known therapeutic agents to treat angiogenesis related disorders and conditions, including but not limited to tumor angiogenesis, cancers such as breast cancer, lung cancer, colorectal cancer, renal cancer, pancreatic cancer, or melanoma, or ocular indications such as diabetic retinopathy, or age related macular degeneration, and/or endometriosis, birth control, endometrial tumors, gynecologic bleeding disorders, irregular menstrual cycles, ovulation, premenstrual syndrome (PMS), menopausal dysfunction, endometrial carcinoma, and/or other diseases or conditions which respond to the modulation of VEGF and/or VEGFr, such as VEGFR1 and/or VEGFR2 expression.

Other features and advantages of the invention will be apparent from the following description of the preferred embodiments thereof, and from the claims.

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Brief Description of the Drawings

Figure 1 shows a secondary structure model of ANGIOZYME TM ribozyme bound to its RNA target.

Figure 2 shows a time course of inhibition of primary tumor growth following systemic administration of ANGIOZYME™ in the LLC mouse model.

Figure 3 shows inhibition of primary tumor growth following systemic administration of ANGIOZYMETM according to a certain dosing regimen in the LLC mouse model.

Figure 4 shows a dose-dependent inhibition of tumor metastases following systemic administration of ANGIOZYME™ in a mouse colorectal model.

Figure 5 is a graph showing the plasma concentration profile of ANGIOZYME™ after a single subcutaneous (SC) dose of 10, 30, 100 or 300 mg/m².

Figure 6 shows examples of chemically stabilized ribozyme motifs. HH Rz, represents hammerhead ribozyme motif (Usman et al., 1996, Curr. Op. Struct. Bio., 1, 527); NCH Rz represents the NCH ribozyme motif (Ludwig et al., International PCT Publication No. WO 98/58058 and US Patent Application Serial No. 08/878,640); G-Cleaver, represents G-cleaver ribozyme motif (Kore et al., 1998, Nucleic Acids Research 26, 4116-4120, Eckstein et

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al., US 6,127,173). N or n, represent independently a nucleotide which can be same or different and have complementarity to each other; rI, represents ribo-Inosine nucleotide; arrow indicates the site of cleavage within the target. Position 4 of the HH Rz and the NCH Rz is shown as having 2'-C-allyl modification, but those skilled in the art will recognize that this position can be modified with other modifications well known in the art, so long as such modifications do not significantly inhibit the activity of the ribozyme.

Figure 7 shows an example of a Zinzyme A ribozyme motif that is chemically stabilized (see for example Beigelman *et al.*, International PCT publication No. WO 99/55857 and US Patent Application Serial No. 09/918,728).

Figure 8 shows an example of a DNAzyme motif described by Santoro et al., 1997, PNAS, 94, 4262 and Joyce et al., US 5,807,718.

Figure 9 shows data demonstrating the inhibition of soluble VEGFR1 in a clinical study using ANGIOZYME (SEQ ID NO: 5977).

Figure 10 shows an generalized outline for the mouse model of proliferative retinopathy showing the points of ribozyme administration.

Figure 11 shows a graph demonstrating the efficacy of a VEGF-receptor-targeted enzymatic nucleic acid molecule in a mouse model of proliferative retinopathy.

Detailed Description of the Invention

Nucleic Acid Molecules and Mechanism of Action

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Enzymatic Nucleic Acid: Several varieties of naturally-occurring enzymatic nucleic acids are presently known. In addition, several in vitro selection (evolution) strategies (Orgel, 1979, Proc. R. Soc. London, B 205, 435) have been used to evolve new nucleic acid catalysts capable of catalyzing cleavage and ligation of phosphodiester linkages (Joyce, 1989, Gene, 82, 83-87; Beaudry et al., 1992, Science 257, 635-641; Joyce, 1992, Scientific American 267, 90-97; Breaker et al., 1994, TIBTECH 12, 268; Bartel et al., 1993, Science 261:1411-1418; Szostak, 1993, TIBS 17, 89-93; Kumar et al., 1995, FASEB J., 9, 1183; Breaker, 1996, Curr. Op. Biotech., 7, 442; Santoro et al., 1997, Proc. Natl. Acad. Sci., 94, 4262; Tang et al., 1997, RNA 3, 914; Nakamaye & Eckstein, 1994, supra; Long & Uhlenbeck, 1994, supra; Ishizaka et al., 1995, supra; Vaish et al., 1997, Biochemistry 36, 6495; all of these are incorporated by reference herein). Each can catalyze a series of reactions including the hydrolysis of

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phosphodiester bonds in trans (and thus can cleave other nucleic acid molecules) under physiological conditions.

The enzymatic nature of an enzymatic nucleic acid molecule has significant advantages, one advantage being that the concentration of enzymatic nucleic acid molecule necessary to affect a therapeutic treatment is lower. This advantage reflects the ability of the enzymatic nucleic acid molecule to act enzymatically. Thus, a single enzymatic nucleic acid molecule is able to cleave many molecules of target nucleic acid. In addition, the enzymatic nucleic acid molecule is a highly specific inhibitor, with the specificity of inhibition depending not only on the base-pairing mechanism of binding to the target nucleic acid, but also on the mechanism of target nucleic acid cleavage. Single mismatches, or base-substitutions, near the site of cleavage can be chosen to completely eliminate catalytic activity of a enzymatic nucleic acid molecule.

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Nucleic acid molecules having an endonuclease enzymatic activity are able to repeatedly cleave other separate nucleic acid molecules in a nucleotide base sequence-specific manner. With the proper design, such enzymatic nucleic acid molecules can be targeted to RNA transcripts, and achieve efficient cleavage in vitro (Zaug et al., 324, Nature 429 1986; Uhlenbeck, 1987 Nature 328, 596; Kim et al., 84 Proc. Natl. Acad. Sci. USA 8788, 1987; Dreyfus, 1988, Einstein Quart. J. Bio. Med., 6, 92; Haseloff and Gerlach, 334 Nature 585, 1988; Cech, 260 JAMA 3030, 1988; and Jefferies et al., 17 Nucleic Acids Research 1371, 1989; Santoro et al., 1997 supra).

Because of their sequence specificity, trans-cleaving enzymatic nucleic acid molecules can be used as therapeutic agents for human disease (Usman & McSwiggen, 1995 Ann. Rep. Med. Chem. 30, 285-294; Christoffersen and Marr, 1995 J. Med. Chem. 38, 2023-2037). Enzymatic nucleic acid molecules can be designed to cleave specific nucleic acid targets within the background of cellular nucleic acid. Such a cleavage event renders the nucleic acid non-functional and abrogates protein expression from that nucleic acid. In this manner, synthesis of a protein associated with a disease state can be selectively inhibited (Warashina et al., 1999, Chemistry and Biology, 6, 237-250).

Enzymatic nucleic acid molecules of the invention that are allosterically regulated ("allozymes") can be used to down-regulate VEGF and/or VEGFr, such as VEGFR1 and/or VEGFR2, expression. These allosteric enzymatic nucleic acids or allozymes (see for example Usman et al., US Patent Application No. 09/877,526, George et al., US Patent Nos. 5,834,186 and 5,741,679, Shih et al., US Patent No. 5,589,332, Nathan et al., US Patent No 5,871,914, Nathan and Ellington, International PCT publication No. WO 00/24931, Breaker

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et al., International PCT Publication Nos. WO 00/26226 and 98/27104, and Sullenger et al., US Patent Application Serial No. 09/205,520) are designed to respond to a signaling agent, for example, mutant VEGFR1 and/or VEGFR2 protein, wild-type VEGFR1 and/or VEGFR2 protein, mutant VEGFR1 and/or VEGFR2 RNA, wild-type VEGFR1 and/or VEGFR2 RNA, other proteins and/or RNAs involved in VEGF signal transduction, compounds, metals, polymers, molecules and/or drugs that are targeted to VEGFR1 and/or VEGFR2 expression. which in turn modulates the activity of the enzymatic nucleic acid molecule. In response to interaction with a predetermined signaling agent, the activity of the allosteric enzymatic nucleic acid is activated or inhibited such that the expression of a particular target is selectively down-regulated. The target can comprise wild-type VEGFR1 and/or VEGFR2. mutant VEGFR1 and/or VEGFR2, and/or a predetermined component of the VEGF signal transduction pathway. In a specific example, allosteric enzymatic nucleic acid molecules that are activated by interaction with a RNA encoding VEGF protein are used as therapeutic agents in vivo. The presence of RNA encoding the VEGF protein activates the allosteric enzymatic nucleic acid molecule that subsequently cleaves the RNA encoding a VEGFR1 and/or VEGFR2 protein resulting in the inhibition of VEGFR1 and/or VEGFR2 protein expression.

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In another non-limiting example, an allozyme can be activated by a VEGF and/or VEGFr, such as VEGFR1 and/or VEGFR2 protein, peptide, or mutant polypeptide that causes the allozyme to inhibit the expression of VEGF and/or VEGFr, such as VEGFR1 and/or VEGFR2 genes, by, for example, cleaving RNA encoded by VEGF, VEGFR1 and/or VEGFR2 gene. In this non-limiting example, the allozyme acts as a decoy to inhibit the function of VEGF, VEGFR1 and/or VEGFR2 and also inhibit the expression of VEGF, VEGFR1 and/or VEGFR2 protein.

Antisense: Antisense molecules can be modified or unmodified RNA, DNA, or mixed polymer oligonucleotides and primarily function by specifically binding to matching sequences resulting in inhibition of peptide synthesis (Wu-Pong, Nov 1994, *BioPharm*, 20-33). The antisense oligonucleotide binds to target RNA by Watson Crick base-pairing and blocks gene expression by preventing ribosomal translation of the bound sequences either by steric blocking or by activating RNase H enzyme. Antisense molecules can also alter protein synthesis by interfering with RNA processing or transport from the nucleus into the cytoplasm (Mukhopadhyay & Roth, 1996, *Crit. Rev. in Oncogenesis* 7, 151-190).

In addition, binding of single stranded DNA to RNA can result in nuclease degradation of the heteroduplex (Wu-Pong, supra; Crooke, supra). To date, the only backbone modified

DNA chemistry which act as substrates for RNase H are phosphorothioates, phosphorodithioates, and borontrifluoridates. Recently it has been reported that 2'-arabino and 2'-fluoro arabino- containing oligos can also activate RNase H activity.

A number of antisense molecules have been described that utilize novel configurations of chemically modified nucleotides, secondary structure, and/or RNase H substrate domains (Woolf et al., International PCT Publication No. WO 98/13526; Thompson et al., International PCT Publication No. WO 99/54459; Hartmann et al., USSN 60/101,174 which was filed on September 21, 1998) all of these are incorporated by reference herein in their entirety.

In addition, antisense deoxyoligoribonucleotides can be used to target RNA by means of DNA-RNA interactions, thereby activating RNase H, which digests the target RNA in the duplex. Antisense DNA can be expressed via the use of a single stranded DNA intracellular expression vector or equivalents and variations thereof.

Triplex Forming Oligonucleotides (TFO): Single stranded DNA can be designed to bind to genomic DNA in a sequence specific manner. TFOs are comprised of pyrimidine-rich oligonucleotides which bind DNA helices through Hoogsteen Base-pairing (Wu-Pong, supra). The resulting triple helix composed of the DNA sense, DNA antisense, and TFO disrupts RNA synthesis by RNA polymerase. The TFO mechanism can result in gene expression or cell death since binding can be irreversible (Mukhopadhyay & Roth, supra).

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2-5A Antisense Chimera: The 2-5A system is an interferon mediated mechanism for RNA degradation found in higher vertebrates (Mitra et al., 1996, Proc Nat Acad Sci USA 93, 6780-6785). Two types of enzymes, 2-5A synthetase and RNase L, are required for RNA cleavage. The 2-5A synthetases require double stranded RNA to form 2'-5' oligoadenylates (2-5A). 2-5A then acts as an allosteric effector for utilizing RNase L which has the ability to cleave single stranded RNA. The ability to form 2-5A structures with double stranded RNA makes this system particularly useful for inhibition of viral replication.

(2'-5') oligoadenylate structures can be covalently linked to antisense molecules to form chimeric oligonucleotides capable of RNA cleavage (Torrence, *supra*). These molecules putatively bind and activate a 2-5A dependent RNase, the oligonucleotide/enzyme complex then binds to a target RNA molecule which can then be cleaved by the RNase enzyme.

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RNAi: Double-stranded RNAs can suppress expression of homologous genes through an evolutionarily conserved process named RNA interference (RNAi) or post-transcriptional gene silencing (PTGS). One mechanism underlying silencing is the degradation of target mRNAs by an RNP complex, which contains short interfering RNAs (siRNAs) as guides to substrate selection. Short interfering RNAs are typically 21 to 23 nucleotides in length. A bidentate nuclease called Dicer has been implicated as the protein responsible for siRNA production. For example, a double-stranded RNA (dsRNA) matching a gene sequence is synthesized in vitro and introduced into a cell. The dsRNA feeds into a biological pathway and is broken into short pieces of short interfering (si) RNAs. With the help of cellular enzymes such as Dicer, the siRNA triggers the degradation of the messenger RNA that matches its sequence (see for example Tuschl et al., International PCT Publication No. WO 01/75164; Bass, 2001, Nature, 411, 428-429; Elbashir et al., 2001, Nature, 411, 494-498; and Kreutzer et al., International PCT Publication No. WO 00/44895).

Target sites

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Targets for useful nucleic acid molecules of the invention, such as enzymatic nucleic acid molecules, dsRNA, and antisense nucleic acids can be determined as disclosed in Draper et al., WO 93/23569; Sullivan et al., WO 93/23057; Thompson et al., WO 94/02595; Draper et al., WO 95/04818; McSwiggen et al., US Patent No. 5,525,468, and hereby incorporated by reference herein in totality. Other examples include the following PCT applications, which concern inactivation of expression of disease-related genes: WO 95/23225, WO 95/13380, WO 94/02595, incorporated by reference herein. Rather than repeat the guidance provided in those documents here, below are provided specific examples of such methods. not limiting to those in the art. Enzymatic nucleic acid molecules and antisense to such targets are designed as described in those applications and synthesized to be tested in vitro and in vivo, as also described. The sequences of human VEGF, VEGFR1 and/or VEGFR2 RNAs are screened for optimal nucleic acid target sites using a computer-folding algorithm. Potential nucleic acid binding/cleavage sites are identified. While human sequences can be screened and nucleic acid molecules thereafter designed, as discussed in Stinchcomb et al., WO 95/23225, mouse targeted enzymatic nucleic acid molecules can be useful to test efficacy of action of the nucleic acid molecule prior to testing in humans.

Nucleic acid molecule binding/cleavage sites are identified, for example enzymatic nucleic acid, antisense, and dsRNA mediated binding sites are chosen. For enzymatic nucleic acid molecules of the invention, the nucleic acid molecules are individually analyzed by computer folding (Jaeger et al., 1989 Proc. Natl. Acad. Sci. USA, 86, 7706) to assess whether

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the sequences fold into the appropriate secondary structure. Those nucleic acid molecules with unfavorable intramolecular interactions such as between the binding arms and the catalytic core can be eliminated from consideration. Varying binding arm lengths can be chosen to optimize activity.

Nucleic acids, such as antisense, RNAi, and/or enzymatic nucleic acid molecule binding/cleavage sites are identified and are designed to anneal to various sites in the nucleic acid target. The binding arms of enzymatic nucleic acid molecules of the invention are complementary to the target site sequences described above. Antisense and RNAi sequences are designed to have partial or complete complementarity to the nucleic acid target. The nucleic acid molecules can be chemically synthesized. The method of synthesis used follows the procedure for normal DNA/RNA synthesis as described below and in Usman et al., 1987 J. Am. Chem. Soc., 109, 7845; Scaringe et al., 1990 Nucleic Acids Res., 18, 5433; and Wincott et al., 1995 Nucleic Acids Res. 23, 2677-2684; Caruthers et al., 1992, Methods in Enzymology 211,3-19.

15 Synthesis of Nucleic acid Molecules

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Synthesis of nucleic acids greater than 100 nucleotides in length is difficult using automated methods, and the therapeutic cost of such molecules is prohibitive. In this invention, small nucleic acid motifs ("small refers to nucleic acid motifs less than about 100 nucleotides in length, preferably less than about 80 nucleotides in length, and more preferably less than about 50 nucleotides in length; e.g., antisense oligonucleotides, enzymatic nucleic acids, aptamers, allozymes, decoys, siRNA etc.) are preferably used for exogenous delivery. The simple structure of these molecules increases the ability of the nucleic acid to invade targeted regions of RNA structure. Exemplary molecules of the instant invention are chemically synthesized, and others can similarly be synthesized.

DNA Oligonucleotides are synthesized using protocols known in the art as described in Caruthers et al., 1992, Methods in Enzymology 211, 3-19, Thompson et al., International PCT Publication No. WO 99/54459, Wincott et al., 1995, Nucleic Acids Res. 23, 2677-2684, Wincott et al., 1997, Methods Mol. Bio., 74, 59, Brennan et al., 1998, Biotechnol Bioeng., 61, 33-45, and Brennan, US patent No. 6,001,311. All of these references are incorporated herein by reference. The synthesis of oligonucleotides makes use of common nucleic acid protecting and coupling groups, such as dimethoxytrityl at the 5'-end, and phosphoramidites at the 3'-end. In a non-limiting example, small scale syntheses are conducted on a 394 Applied Biosystems, Inc. synthesizer using a 0.2 µmol scale protocol with a 2.5 min coupling step for 2'-O-methylated nucleotides and a 45 sec coupling step for 2'-deoxy nucleotides. Table II

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outlines the amounts and the contact times of the reagents used in the synthesis cycle. Alternatively, syntheses at the 0.2 µmol scale can be performed on a 96-well plate synthesizer, such as the instrument produced by Protogene (Palo Alto, CA) with minimal modification to the cycle. A 33-fold excess (60 µL of 0.11 M = 6.6 µmol) of 2'-O-methyl phosphoramidite and a 105-fold excess of S-ethyl tetrazole (60 µL of 0.25 M = 15 µmol) can be used in each coupling cycle of 2'-O-methyl residues relative to polymer-bound 5'hydroxyl. A 22-fold excess (40 µL of 0.11 M = 4.4 µmol) of deoxy phosphoramidite and a 70-fold excess of S-ethyl tetrazole (40 μ L of 0.25 M = 10 μ mol) can be used in each coupling cycle of deoxy residues relative to polymer-bound 5'-hydroxyl. Average coupling yields on the 394 Applied Biosystems, Inc. synthesizer, determined by colorimetric quantitation of the trityl fractions, are typically 97.5-99%. Other oligonucleotide synthesis reagents for the 394 Applied Biosystems, Inc. synthesizer include; detritylation solution is 3% TCA in methylene chloride (ABI); capping is performed with 16% N-methyl imidazole in THF (ABI) and 10% acetic anhydride/10% 2,6-lutidine in THF (ABI); and oxidation solution is 16.9 mM I₂, 49 mM pyridine, 9% water in THF (PERSEPTIVETM). Burdick & Jackson Synthesis Grade acetonitrile is used directly from the reagent bottle. S-Ethyltetrazole solution (0.25 M in acetonitrile) is made up from the solid obtained from American International Chemical, Inc. Alternately, for the introduction of phosphorothioate linkages, Beaucage reagent (3H-1.2-Benzodithiol-3-one 1,1-dioxide, 0.05 M in acetonitrile) is used.

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Deprotection of the DNA polynucleotides is performed as follows: the polymer-bound trityl-on oligoribonucleotide is transferred to a 4 mL glass screw top vial and suspended in a solution of 40% aq. methylamine (1 mL) at 65 °C for 10 min. After cooling to -20 °C, the supernatant is removed from the polymer support. The support is washed three times with 1.0 mL of EtOH:MeCN:H2O/3:1:1, vortexed and the supernatant is then added to the first supernatant. The combined supernatants, containing the oligoribonucleotide, are dried to a white powder.

The method of synthesis used for RNA oligonucleotides including certain nucleic acid molecules of the invention follows the procedure as described in Usman et al., 1987, J. Am. Chem. Soc., 109, 7845; Scaringe et al., 1990, Nucleic Acids Res., 18, 5433; and Wincott et al., 1995, Nucleic Acids Res. 23, 2677-2684 Wincott et al., 1997, Methods Mol. Bio., 74, 59, and makes use of common nucleic acid protecting and coupling groups, such as dimethoxytrityl at the 5'-end, and phosphoramidites at the 3'-end. In a non-limiting example, small scale syntheses are conducted on a 394 Applied Biosystems, Inc. synthesizer using a 0.2 µmol scale protocol with a 7.5 min coupling step for alkylsilyl protected nucleotides and a 2.5 min coupling step for 2'-O-methylated nucleotides. Table II outlines the amounts and the

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contact times of the reagents used in the synthesis cycle. Alternatively, syntheses at the 0.2 µmol scale can be done on a 96-well plate synthesizer, such as the instrument produced by Protogene (Palo Alto, CA) with minimal modification to the cycle. A 33-fold excess (60 µL of 0.11 M = 6.6 µmol) of 2'-O-methyl phosphoramidite and a 75-fold excess of S-ethyl tetrazole (60 µL of 0.25 M = 15 µmol) can be used in each coupling cycle of 2'-O-methyl residues relative to polymer-bound 5'-hydroxyl. A 66-fold excess (120 µL of 0.11 M = 13.2 µmol) of alkylsilyl (ribo) protected phosphoramidite and a 150-fold excess of S-ethyl tetrazole (120 μ L of 0.25 M = 30 μ mol) can be used in each coupling cycle of ribo residues relative to polymer-bound 5'-hydroxyl. Average coupling yields on the 394 Applied Biosystems, Inc. synthesizer, determined by colorimetric quantitation of the trityl fractions. are typically 97.5-99%. Other oligonucleotide synthesis reagents for the 394 Applied Biosystems, Inc. synthesizer include; detritylation solution is 3% TCA in methylene chloride (ABI); capping is performed with 16% N-methyl imidazole in THF (ABI) and 10% acetic anhydride/10% 2,6-lutidine in THF (ABI); oxidation solution is 16.9 mM I2, 49 mM pyridine, 9% water in THF (PERSEPTIVE™). Burdick & Jackson Synthesis Grade acetonitrile is used directly from the reagent bottle. S-Ethyltetrazole solution (0.25 M in acetonitrile) is made up from the solid obtained from American International Chemical, Inc. Alternately, for the introduction of phosphorothioate linkages, Beaucage reagent (3H-1,2-Benzodithiol-3-one 1,1dioxide0.05 M in acetonitrile) is used.

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Deprotection of the RNA is performed using either a two-pot or one-pot protocol. For the two-pot protocol, the polymer-bound trityl-on oligoribonucleotide is transferred to a 4 mL glass screw top vial and suspended in a solution of 40% aq. methylamine (1 mL) at 65 °C for 10 min. After cooling to -20 °C, the supernatant is removed from the polymer support. The support is washed three times with 1.0 mL of EtOH:MeCN:H2O/3:1:1, vortexed and the supernatant is then added to the first supernatant. The combined supernatants, containing the oligoribonucleotide, are dried to a white powder. The base deprotected oligoribonucleotide is resuspended in anhydrous TEA/HF/NMP solution (300 µL of a solution of 1.5 mL N-methylpyrrolidinone, 750 µL TEA and 1 mL TEA*3HF to provide a 1.4 M HF concentration) and heated to 65 °C. After 1.5 h, the oligomer is quenched with 1.5 M NH₄HCO₃.

Alternatively, for the one-pot protocol, the polymer-bound trityl-on oligoribonucleotide is transferred to a 4 mL glass screw top vial and suspended in a solution of 33% ethanolic methylamine/DMSO: 1/1 (0.8 mL) at 65 °C for 15 min. The vial is brought to r.t. TEA•3HF (0.1 mL) is added and the vial is heated at 65 °C for 15 min. The sample is cooled at -20 °C and then quenched with 1.5 M NH₄HCO₃.

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For purification of the trityl-on oligomers, the quenched NH₄HCO₃ solution is loaded onto a C-18 containing cartridge that had been prewashed with acetonitrile followed by 50 mM TEAA. After washing the loaded cartridge with water, the RNA is detritylated with 0.5% TFA for 13 min. The cartridge is then washed again with water, salt exchanged with 1 M NaCl and washed with water again. The oligonucleotide is then eluted with 30% acetonitrile.

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Inactive hammerhead ribozymes or binding attenuated control (BAC) oligonucleotides) are synthesized by substituting a U for G5 and a U for A14 (numbering from Hertel, K. J., et al., 1992, Nucleic Acids Res., 20, 3252). Similarly, one or more nucleotide substitutions can be introduced in other enzymatic nucleic acid molecules to inactivate the molecule and such molecules can serve as a negative control.

The average stepwise coupling yields are typically >98% (Wincott et al., 1995 Nucleic Acids Res. 23, 2677-2684). Those of ordinary skill in the art will recognize that the scale of synthesis can be adapted to be larger or smaller than the example described above including but not limited to 96 well format, all that is important is the ratio of chemicals used in the reaction.

Alternatively, the nucleic acid molecules of the present invention can be synthesized separately and joined together post-synthetically, for example by ligation (Moore et al., 1992, Science 256, 9923; Draper et al., International PCT publication No. WO 93/23569; Shabarova et al., 1991, Nucleic Acids Research 19, 4247; Bellon et al., 1997, Nucleosides & Nucleotides, 16, 951; Bellon et al., 1997, Bioconjugate Chem. 8, 204).

Preferably, the nucleic acid molecules of the present invention are modified extensively to enhance stability by modification with nuclease resistant groups, for example, 2'-amino, 2'-C-allyl, 2'-flouro, 2'-O-methyl, 2'-H (for a review see Usman and Cedergren, 1992, TIBS 17, 34; Usman et al., 1994, Nucleic Acids Symp. Ser. 31, 163). Ribozymes are purified by gel electrophoresis using general methods or are purified by high pressure liquid chromatography (HPLC; See Wincott et al., Supra, the totality of which is hereby incorporated herein by reference) and are re-suspended in water.

Optimizing Activity of the nucleic acid molecule of the invention.

Chemically synthesizing nucleic acid molecules with modifications (base, sugar and/or phosphate) that prevent their degradation by serum ribonucleases can increase their potency (see e.g., Eckstein et al., International Publication No. WO 92/07065; Perrault et al., 1990 Nature 344, 565; Pieken et al., 1991, Science 253, 314; Usman and Cedergren, 1992, Trends

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in Biochem. Sci. 17, 334; Usman et al., International Publication No. WO 93/15187; and Rossi et al., International Publication No. WO 91/03162; Sproat, US Patent No. 5,334,711; Gold et al., US 6,300,074; and Burgin et al., supra; all of which are incorporated by reference herein). Modifications which enhance their efficacy in cells, and removal of bases from nucleic acid molecules to shorten oligonucleotide synthesis times and reduce chemical requirements are desired. (All these publications are hereby incorporated by reference herein).

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There are several examples in the art describing sugar, base and phosphate modifications that can be introduced into nucleic acid molecules with significant enhancement in their nuclease stability and efficacy. For example, oligonucleotides are modified to enhance stability and/or enhance biological activity by modification with nuclease resistant groups, for example, 2'-amino, 2'-C-allyl, 2'-flouro, 2'-O-methyl, 2'-H, nucleotide base modifications (for a review see Usman and Cedergren, 1992, TIBS. 17, 34; Usman et al., 1994, Nucleic Acids Symp. Ser. 31, 163; Burgin et al., 1996, Biochemistry, 35, 14090). Sugar modification of nucleic acid molecules have been extensively described in the art (see Eckstein et al., International Publication PCT No. WO 92/07065; Perrault et al. Nature, 1990, 344, 565-568; Pieken et al. Science, 1991, 253, 314-317; Usman and Cedergren, Trends in Biochem. Sci., 1992, 17, 334-339; Usman et al. International Publication PCT No. WO 93/15187; Sproat, US Patent No. 5,334,711 and Beigelman et al., 1995, J. Biol. Chem., 270, 25702; Beigelman et al., International PCT publication No. WO 97/26270; Beigelman et al., US Patent No. 5,716,824; Usman et al., US patent No. 5,627,053; Woolf et al., International PCT Publication No. WO 98/13526; Thompson et al., USSN 60/082,404 which was filed on April 20, 1998; Karpeisky et al., 1998, Tetrahedron Lett., 39, 1131; Earnshaw and Gait, 1998, Biopolymers (Nucleic acid Sciences), 48, 39-55; Verma and Eckstein, 1998, Annu. Rev. Biochem., 67, 99-134; and Burlina et al., 1997, Bioorg. Med. Chem., 5, 1999-2010; all of the references are hereby incorporated in their totality by reference herein). Such publications describe general methods and strategies to determine the location of incorporation of sugar, base and/or phosphate modifications and the like into ribozymes without inhibiting catalysis, and are incorporated by reference herein. In view of such teachings, similar modifications can be used as described herein to modify the nucleic acid molecules of the instant invention.

While chemical modification of oligonucleotide internucleotide linkages with phosphorothicate, phosphorothicate, and/or 5'-methylphosphonate linkages improves stability, too many of these modifications can cause some toxicity. Therefore when designing nucleic acid molecules the amount of these internucleotide linkages should be minimized.

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The reduction in the concentration of these linkages should lower toxicity resulting in increased efficacy and higher specificity of these molecules.

Nucleic acid molecules having chemical modifications that maintain or enhance activity are provided. Such nucleic acid is also generally more resistant to nucleases than unmodified nucleic acid. Thus, in a cell and/or in vivo the activity may not be significantly lowered. Therapeutic nucleic acid molecules delivered exogenously are optimally stable within cells until translation of the target RNA has been inhibited long enough to reduce the levels of the undesirable protein. This period of time varies between hours to days depending upon the disease state. Clearly, nucleic acid molecules must be resistant to nucleases in order to function as effective intracellular therapeutic agents. Improvements in the chemical synthesis of RNA and DNA (Wincott et al., 1995 Nucleic Acids Res. 23, 2677; Caruthers et al., 1992, Methods in Enzymology 211,3-19 (incorporated by reference herein) have expanded the ability to modify nucleic acid molecules by introducing nucleotide modifications to enhance their nuclease stability as described above.

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In one embodiment, nucleic acid molecules of the invention include one or more G-clamp nucleotides. A G-clamp nucleotide is a modified cytosine analog wherein the modifications confer the ability to hydrogen bond both Watson-Crick and Hoogsteen faces of a complementary guanine within a duplex, see for example Lin and Matteucci, 1998, J. Am. Chem. Soc., 120, 8531-8532. A single G-clamp analog substitution within an oligonucleotide can result in substantially enhanced helical thermal stability and mismatch discrimination when hybridized to complementary oligonucleotides. The inclusion of such nucleotides in nucleic acid molecules of the invention results in both enhanced affinity and specificity to nucleic acid targets. In another embodiment, nucleic acid molecules of the invention include one or more LNA "locked nucleic acid" nucleotides such as a 2', 4'-C mythylene bicyclo nucleotide (see for example Wengel et al., International PCT Publication No. WO 00/66604 and WO 99/14226).

In another embodiment, the invention features conjugates and/or complexes of nucleic acid molecules targeting VEGF receptors such as VEGFR1 and/or VEGFR2. Such conjugates and/or complexes can be used to facilitate delivery of molecules into a biological system, such as cells. The conjugates and complexes provided by the instant invention can impart therapeutic activity by transferring therapeutic compounds across cellular membranes, altering the pharmacokinetics, and/or modulating the localization of nucleic acid molecules of the invention. The present invention encompasses the design and synthesis of novel conjugates and complexes for the delivery of molecules, including but not limited to small

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molecules, lipids, phospholipids, nucleosides, nucleotides, nucleic acids, antibodies, toxins, negatively charged polymers and other polymers, for example proteins, peptides, hormones, carbohydrates, polyethylene glycols, or polyamines, across cellular membranes. In general, the transporters described are designed to be used either individually or as part of a multi-component system, with or without degradable linkers. These compounds are expected to improve delivery and/or localization of nucleic acid molecules of the invention into a number of cell types originating from different tissues, in the presence or absence of serum (see Sullenger and Cech, US 5,854,038). Conjugates of the molecules described herein can be attached to biologically active molecules via linkers that are biodegradable, such as biodegradable nucleic acid linker molecules.

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The term "biodegradable nucleic acid linker molecule" as used herein, refers to a nucleic acid molecule that is designed as a biodegradable linker to connect one molecule to another molecule, for example, a biologically active molecule. The stability of the biodegradable nucleic acid linker molecule can be modulated by using various combinations of ribonucleotides, deoxyribonucleotides, and chemically modified nucleotides, for example, 2'-O-methyl, 2'-fluoro, 2'-amino, 2'-O-amino, 2'-C-allyl, 2'-O-allyl, and other 2'-modified or base modified nucleotides. The biodegradable nucleic acid linker molecule can be a dimer, trimer, tetramer or longer nucleic acid molecule, for example, an oligonucleotide of about 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20 nucleotides in length, or can comprise a single nucleotide with a phosphorus based linkage, for example, a phosphoramidate or phosphodiester linkage. The biodegradable nucleic acid linker molecule can also comprise nucleic acid backbone, nucleic acid sugar, or nucleic acid base modifications.

The term "biodegradable" as used herein, refers to degradation in a biological system, for example enzymatic degradation or chemical degradation.

The term "biologically active molecule" as used herein, refers to compounds or molecules that are capable of eliciting or modifying a biological response in a system. Non-limiting examples of biologically active molecules contemplated by the instant invention include therapeutically active molecules such as antibodies, hormones, antivirals, peptides, proteins, chemotherapeutics, small molecules, vitamins, co-factors, nucleosides, nucleotides, oligonucleotides, enzymatic nucleic acids, antisense nucleic acids, triplex forming oligonucleotides, 2,5-A chimeras, siRNA, dsRNA, allozymes, aptamers, decoys and analogs thereof. Biologically active molecules of the invention also include molecules capable of modulating the pharmacokinetics and/or pharmacodynamics of other biologically active

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molecules, for example, lipids and polymers such as polyamines, polyamides, polyethylene glycol and other polyethers.

The term "phospholipid" as used herein, refers to a hydrophobic molecule comprising at least one phosphorus group. For example, a phospholipid can comprise a phosphorus containing group and saturated or unsaturated alkyl group, optionally substituted with OH, COOH, oxo, amine, or substituted or unsubstituted aryl groups.

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Therapeutic nucleic acid molecules (e.g., enzymatic nucleic acid molecules and antisense nucleic acid molecules) delivered exogenously are optimally stable within cells until translation of the target RNA has been inhibited long enough to reduce the levels of the undesirable protein. This period of time varies between hours to days depending upon the disease state. These nucleic acid molecules should be resistant to nucleases in order to function as effective intracellular therapeutic agents. Improvements in the chemical synthesis of nucleic acid molecules described in the instant invention and in the art have expanded the ability to modify nucleic acid molecules by introducing nucleotide modifications to enhance their nuclease stability as described above.

In another embodiment, nucleic acid catalysts having chemical modifications that maintain or enhance enzymatic activity are provided. Such nucleic acids are also generally more resistant to nucleases than unmodified nucleic acid. Thus, in a cell and/or in vivo the activity of the nucleic acid may not be significantly lowered. As exemplified herein such enzymatic nucleic acids are useful in a cell and/or in vivo even if activity over all is reduced 10 fold (Burgin et al., 1996, Biochemistry, 35, 14090). Such enzymatic nucleic acids herein are said to "maintain" the enzymatic activity of an all RNA ribozyme or all DNA DNAzyme.

In another aspect the nucleic acid molecules comprise a 5' and/or a 3'- cap structure.

By "cap structure" is meant chemical modifications, which have been incorporated at either terminus of the oligonucleotide (see for example Wincott et al., WO 97/26270, incorporated by reference herein). These terminal modifications protect the nucleic acid molecule from exonuclease degradation, and can help in delivery and/or localization within a cell. The cap can be present at the 5'-terminus (5'-cap) or at the 3'-terminus (3'-cap) or can be present on both terminus. In non-limiting examples, the 5'-cap includes inverted abasic residue (moiety), 4',5'-methylene nucleotide; 1-(beta-D-erythrofuranosyl) nucleotide, 4'-thio nucleotide, carbocyclic nucleotide; 1,5-anhydrohexitol nucleotide; L-nucleotides; alphanucleotides; modified base nucleotide; phosphorodithioate linkage; threo-pentofuranosyl nucleotide; acyclic 3',4'-seco nucleotide; acyclic 3,4-dihydroxybutyl nucleotide; acyclic 3,5-

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dihydroxypentyl nucleotide, 3'-3'-inverted nucleotide moiety; 3'-3'-inverted abasic moiety; 3'-2'-inverted nucleotide moiety; 3'-2'-inverted abasic moiety; 1,4-butanediol phosphate; 3'-phosphoramidate; hexylphosphate; aminohexyl phosphate; 3'-phosphorothioate; phosphorodithioate; or bridging or non-bridging methylphosphonate moiety (for more details see Wincott et al., International PCT publication No. WO 97/26270, incorporated by reference herein).

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In another embodiment the 3'-cap includes, for example 4',5'-methylene nucleotide; 1-(beta-D-erythrofuranosyl) nucleotide; 4'-thio nucleotide, carbocyclic nucleotide; 5'-amino-alkyl phosphate; 1,3-diamino-2-propyl phosphate, 3-aminopropyl phosphate; 6-aminohexyl phosphate; 1,2-aminododecyl phosphate; hydroxypropyl phosphate; 1,5-anhydrohexitol nucleotide; L-nucleotide; alpha-nucleotide; modified base nucleotide; phosphorodithioate; threo-pentofuranosyl nucleotide; acyclic 3',4'-seco nucleotide; 3,4-dihydroxybutyl nucleotide; 3,5-dihydroxypentyl nucleotide, 5'-5'-inverted nucleotide moiety; 5'-5'-inverted abasic moiety; 5'-phosphoramidate; 5'-phosphorothioate; 1,4-butanediol phosphate; 5'-amino; bridging and/or non-bridging 5'-phosphoramidate, phosphorothioate and/or phosphorodithioate, bridging or non bridging methylphosphonate and 5'-mercapto moieties (for more details see Beaucage and Iyer, 1993, Tetrahedron 49, 1925; incorporated by reference herein).

By the term "non-nucleotide" is meant any group or compound which can be incorporated into a nucleic acid chain in the place of one or more nucleotide units, including either sugar and/or phosphate substitutions, and allows the remaining bases to exhibit their enzymatic activity. The group or compound is abasic in that it does not contain a commonly recognized nucleotide base, such as adenosine, guanine, cytosine, uracil or thymine.

An "alkyl" group refers to a saturated aliphatic hydrocarbon, including straight-chain, branched-chain, and cyclic alkyl groups. Preferably, the alkyl group has 1 to 12 carbons. More preferably it is a lower alkyl of from 1 to 7 carbons, more preferably 1 to 4 carbons. The alkyl group can be substituted or unsubstituted. When substituted the substituted group(s) is preferably, hydroxyl, cyano, alkoxy, =O, =S, NO₂ or N(CH3)₂, amino, or SH. The term also includes alkenyl groups which are unsaturated hydrocarbon groups containing at least one carbon-carbon double bond, including straight-chain, branched-chain, and cyclic groups. Preferably, the alkenyl group has 1 to 12 carbons. More preferably it is a lower alkenyl of from 1 to 7 carbons, more preferably 1 to 4 carbons. The alkenyl group can be substituted or unsubstituted. When substituted the substituted group(s) is preferably, hydroxyl, cyano, alkoxy, =O, =S, NO₂, halogen, N(CH₃)₂, amino, or SH. The term "alkyl" also includes alkynyl groups which have an unsaturated hydrocarbon group containing at least

one carbon-carbon triple bond, including straight-chain, branched-chain, and cyclic groups. Preferably, the alkynyl group has 1 to 12 carbons. More preferably it is a lower alkynyl of from 1 to 7 carbons, more preferably 1 to 4 carbons. The alkynyl group can be substituted or unsubstituted. When substituted the substituted group(s) is preferably, hydroxyl, cyano, alkoxy, =0, =S, NO₂ or N(CH₃)₂, amino or SH.

Such alkyl groups can also include aryl, alkylaryl, carbocyclic aryl, heterocyclic aryl, amide and ester groups. An "aryl" group refers to an aromatic group which has at least one ring having a conjugated p electron system and includes carbocyclic aryl, heterocyclic aryl and biaryl groups, all of which can be optionally substituted. The preferred substituent(s) of aryl groups are halogen, trihalomethyl, hydroxyl, SH, OH, cyano, alkoxy, alkyl, alkenyl, alkynyl, and amino groups. An "alkylaryl" group refers to an alkyl group (as described above) covalently joined to an aryl group (as described above). Carbocyclic aryl groups are groups wherein the ring atoms on the aromatic ring are all carbon atoms. The carbon atoms are optionally substituted. Heterocyclic aryl groups are groups having from 1 to 3 heteroatoms as ring atoms in the aromatic ring and the remainder of the ring atoms are carbon atoms. Suitable heteroatoms include oxygen, sulfur, and nitrogen, and include furanyl, thienyl, pyridyl, pyrrolyl, N-lower alkyl pyrrolo, pyrimidyl, pyrazinyl, imidazolyl and the like, all optionally substituted. An "amide" refers to an -C(O)-NH-R, where R is either alkyl, aryl, alkylaryl or hydrogen. An "ester" refers to an -C(O)-OR', where R is either alkyl, aryl, alkylaryl or hydrogen.

By "nucleotide" is meant a heterocyclic nitrogenous base in N-glycosidic linkage with a phosphorylated sugar. Nucleotides are recognized in the art to include natural bases (standard), and modified bases well known in the art. Such bases are generally located at the 1' position of a nucleotide sugar moiety. Nucleotides generally comprise a base, sugar and a phosphate group. The nucleotides can be unmodified or modified at the sugar, phosphate and/or base moiety, (also referred to interchangeably as nucleotide analogs, modified nucleotides, non-natural nucleotides, non-standard nucleotides and other; see for example, Usman and McSwiggen, supra; Eckstein et al., International PCT Publication No. WO 92/07065; Usman et al., International PCT Publication No. WO 93/15187; Uhlman & Peyman, supra all are hereby incorporated by reference herein). There are several examples of modified nucleic acid bases known in the art as summarized by Limbach et al., 1994, Nucleic Acids Res. 22, 2183. Some of the non-limiting examples of chemically modified and other natural nucleic acid bases that can be introduced into nucleic acids include, for example, inosine, purine, pyridin-4-one, pyridin-2-one, phenyl, pseudouracil, 2, 4, 6-trimethoxy benzene, 3-methyl uracil, dihydrouridine, naphthyl, aminophenyl, 5-alkylcytidines (e.g.,

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5-methylcytidine), 5-alkyluridines (e.g., ribothymidine), 5-halouridine (e.g., 5-bromouridine) or 6-azapyrimidines or 6-alkylpyrimidines (e.g. 6-methyluridine), propyne, quesosine, 2thiouridine, 4-thiouridine, wybutosine, wybutoxosine, 5-4-acetylcytidine, (carboxyhydroxymethyl)uridine, 5'-carboxymethylaminomethyl-2-thiouridine, 5carboxymethylaminomethyluridine, beta-D-galactosylqueosine. 1-methyladenosine, 1methylinosine, 2,2-dimethylguanosine, 3-methylcytidine, 2-methyladenosine, 2methylguanosine, N6-methyladenosine, 7-methylguanosine, 5-methoxyaminomethyl-2thiouridine, 5-methylaminomethyluridine, 5-methylcarbonylmethyluridine. 5methyloxyuridine, 5-methyl-2-thiouridine, 2-methylthio-N6-isopentenyladenosine, beta-Dmannosylqueosine, uridine-5-oxyacetic acid, 2-thiocytidine, threonine derivatives and others (Burgin et al., 1996, Biochemistry, 35, 14090; Uhlman & Peyman, supra). By "modified bases" in this aspect is meant nucleotide bases other than adenine, guanine, cytosine and uracil at 1' position or their equivalents; such bases can be used at any position, for example, within the catalytic core of an enzymatic nucleic acid molecule and/or in the substrate-binding regions of the nucleic acid molecule.

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By "nucleoside" is meant a heterocyclic nitrogenous base in N-glycosidic linkage with a sugar. Nucleosides are recognized in the art to include natural bases (standard), and modified bases well known in the art. Such bases are generally located at the 1' position of a nucleoside sugar moiety. Nucleosides generally comprise a base and sugar group. The nucleosides can be unmodified or modified at the sugar, and/or base moiety, (also referred to interchangeably as nucleoside analogs, modified nucleosides, non-natural nucleosides, nonstandard nucleosides and other; see for example, Usman and McSwiggen, supra; Eckstein et al., International PCT Publication No. WO 92/07065; Usman et al., International PCT Publication No. WO 93/15187; Uhlman & Peyman, supra all are hereby incorporated by reference herein). There are several examples of modified nucleic acid bases known in the art as summarized by Limbach et al., 1994, Nucleic Acids Res. 22, 2183. Some of the nonlimiting examples of chemically modified and other natural nucleic acid bases that can be introduced into nucleic acids include, inosine, purine, pyridin-4-one, pyridin-2-one, phenyl, pseudouracil, 2, 4, 6-trimethoxy benzene, 3-methyl uracil, dihydrouridine, naphthyl, aminophenyl, 5-alkylcytidines (e.g., 5-methylcytidine), 5-alkyluridines (e.g., ribothymidine), 5-halouridine (e.g., 5-bromouridine) or 6-azapyrimidines or 6-alkylpyrimidines (e.g. 6methyluridine), propyne, quesosine, 2-thiouridine, 4-thiouridine, wybutosine, wybutosone, 4-acetylcytidine, 5-(carboxyhydroxymethyl)uridine, 5'-carboxymethylaminomethyl-2thiouridine, 5-carboxymethylaminomethyluridine, beta-D-galactosylqueosine, 1methyladenosine. 1-methylinosine. 2,2-dimethylguanosine. 3-methylcytidine. 2methyladenosine. 2-methylguanosine, N6-methyladenosine. 7-methylguanosine. 5-

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methoxyaminomethyl-2-thiouridine, 5-methylaminomethyluridine, 5-methylcarbonylmethyluridine, 5-methyloxyuridine, 5-methyl-2-thiouridine, 2-methylthio-N6-isopentenyladenosine, beta-D-mannosylqueosine, uridine-5-oxyacetic acid, 2-thiocytidine, threonine derivatives and others (Burgin et al., 1996, Biochemistry, 35, 14090; Uhlman & Peyman, supra). By "modified bases" in this aspect is meant nucleoside bases other than adenine, guanine, cytosine and uracil at 1' position or their equivalents; such bases can be used at any position, for example, within the catalytic core of an enzymatic nucleic acid molecule and/or in the substrate-binding regions of the nucleic acid molecule.

In one embodiment, the invention features modified enzymatic nucleic acid molecules with phosphate backbone modifications comprising one or more phosphorothioate, phosphorodithioate, methylphosphonate, morpholino, amidate carbamate, carboxymethyl, acetamidate, polyamide, sulfonate, sulfonamide, sulfamate, formacetal, thioformacetal, and/or alkylsilyl, substitutions. For a review of oligonucleotide backbone modifications see Hunziker and Leumann, 1995, Nucleic Acid Analogues: Synthesis and Properties, in Modern Synthetic Methods, VCH, 331-417, and Mesmaeker et al., 1994, Novel Backbone Replacements for Oligonucleotides, in Carbohydrate Modifications in Antisense Research, ACS, 24-39. These references are hereby incorporated by reference herein.

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By "abasic" is meant sugar moieties lacking a base or having other chemical groups in place of a base at the 1' position, for example a 3',3'-linked or 5',5'-linked deoxyabasic ribose derivative (for more details see Wincott et al., International PCT publication No. WO 97/26270).

By "unmodified nucleoside" is meant one of the bases adenine, cytosine, guanine, thymine, uracil joined to the 1' carbon of β -D-ribo-furanose.

By "modified nucleoside" is meant any nucleotide base which contains a modification in the chemical structure of an unmodified nucleotide base, sugar and/or phosphate.

In connection with 2'-modified nucleotides as described for the present invention, by "amino" is meant 2'-NH₂ or 2'-O- NH₂, which can be modified or unmodified. Such modified groups are described, for example, in Eckstein *et al.*, U.S. Patent 5,672,695 and Matulic-Adamic *et al.*, WO 98/28317, respectively, which are both incorporated by reference in their entireties.

Various modifications to nucleic acid (e.g., antisense and ribozyme) structure can be made to enhance the utility of these molecules. For example, such modifications can enhance

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shelf-life, half-life in vitro, stability, and ease of introduction of such oligonucleotides to the target site, including, e.g., enhancing penetration of cellular membranes and conferring the ability to recognize and bind to targeted cells.

Use of the nucleic acid-based molecules of the invention can lead to better treatment of the disease progression by affording the possibility of combination therapies (e.g., multiple enzymatic nucleic acid molecules targeted to different genes, enzymatic nucleic acid molecules coupled with known small molecule inhibitors, or intermittent treatment with combinations of enzymatic nucleic acid molecules (including different enzymatic nucleic acid molecule motifs) and/or other chemical or biological molecules). The treatment of patients with nucleic acid molecules can also include combinations of different types of nucleic acid molecules. Therapies can be devised which include a mixture of enzymatic nucleic acid molecules (including different enzymatic nucleic acid molecules (including different enzymatic nucleic acid molecule motifs), allozymes, antisense, dsRNA, aptamers, and/or 2-5A chimera molecules to one or more targets to alleviate symptoms of a disease.

15 Administration of Nucleic Acid Molecules

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Methods for the delivery of nucleic acid molecules are described in Akhtar et al., 1992. Trends Cell Bio., 2, 139; and Delivery Strategies for Antisense Oligonucleotide Therapeutics. ed. Akhtar, 1995 which are both incorporated herein by reference. Sullivan et al., PCT WO 94/02595, further describes the general methods for delivery of enzymatic RNA molecules. These protocols can be utilized for the delivery of virtually any nucleic acid molecule. Nucleic acid molecules can be administered to cells by a variety of methods known to those familiar to the art, including, but not restricted to, encapsulation in liposomes, by iontophoresis, or by incorporation into other vehicles, such as hydrogels, cyclodextrins, biodegradable nanocapsules, and bioadhesive microspheres. Alternatively, the nucleic acid/vehicle combination is locally delivered by direct injection or by use of an infusion pump. Other routes of delivery include, but are not limited to oral (tablet or pill form) and/or intrathecal delivery (Gold, 1997, Neuroscience, 76, 1153-1158). Other approaches include the use of various transport and carrier systems, for example though the use of conjugates and biodegradable polymers. For a comprehensive review on drug delivery strategies including CNS delivery, see Ho et al., 1999, Curr. Opin. Mol. Ther., 1, 336-343 and Jain, Drug Delivery Systems: Technologies and Commercial Opportunities, Decision Resources, 1998 and Groothuis et al., 1997, J. Neuro Virol., 3, 387-400. More detailed descriptions of nucleic acid delivery and administration are provided in Sullivan et al., supra, Draper et al., PCT

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WO93/23569, Beigelman et al., PCT WO99/05094, and Klimuk et al., PCT WO99/04819 all of which have been incorporated by reference herein.

The molecules of the instant invention can be used as pharmaceutical agents. Pharmaceutical agents prevent, inhibit the occurrence, or treat (alleviate a symptom to some extent, preferably all of the symptoms) of a disease state in a patient.

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The polynucleotides of the invention can be administered (e.g., RNA, DNA or protein) and introduced into a patient by any standard means, with or without stabilizers, buffers, and the like, to form a pharmaceutical composition. When it is desired to use a liposome delivery mechanism, standard protocols for formation of liposomes can be followed. The compositions of the present invention can also be formulated and used as tablets, capsules or elixirs for oral administration; suppositories for rectal administration; sterile solutions; suspensions for injectable administration; and the other compositions known in the art.

The present invention also includes pharmaceutically acceptable formulations of the compounds described. These formulations include salts of the above compounds, e.g., acid addition salts, for example, salts of hydrochloric, hydrobromic, acetic acid, and benzene sulfonic acid.

A pharmacological composition or formulation refers to a composition or formulation in a form suitable for administration, e.g., systemic administration, into a cell or patient, preferably a human. Suitable forms, in part, depend upon the use or the route of entry, for example oral, transdermal, or by injection. Such forms should not prevent the composition or formulation from reaching a target cell (i.e., a cell to which the negatively charged polymer is desired to be delivered to). For example, pharmacological compositions injected into the blood stream should be soluble. Other factors are known in the art, and include considerations such as toxicity and forms which prevent the composition or formulation from exerting its effect.

By "systemic administration" is meant in vivo systemic absorption or accumulation of drugs in the blood stream followed by distribution throughout the entire body. Administration routes which lead to systemic absorption include, without limitations: intravenous, subcutaneous, intraperitoneal, inhalation, oral, intrapulmonary and intramuscular. Each of these administration routes expose the desired negatively charged polymers, e.g., nucleic acids, to an accessible diseased tissue. The rate of entry of a drug into the circulation has been shown to be a function of molecular weight or size. The use of a liposome or other drug carrier comprising the compounds of the instant invention can

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potentially localize the drug, for example, in certain tissue types, such as the tissues of the reticular endothelial system (RES). A liposome formulation which can facilitate the association of drug with the surface of cells, such as, lymphocytes and macrophages is also useful. This approach can provide enhanced delivery of the drug to target cells by taking advantage of the specificity of macrophage and lymphocyte immune recognition of abnormal cells, such as cells implicated in endometriosis, birth control, endometrial tumors, gynecologic bleeding disorders, irregular menstrual cycles, ovulation, premenstrual syndrome (PMS), menopausal dysfunction, and endometrial carcinoma.

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By pharmaceutically acceptable formulation is meant, a composition or formulation that allows for the effective distribution of the nucleic acid molecules of the instant invention in the physical location most suitable for their desired activity. Non-limiting examples of agents suitable for formulation with the nucleic acid molecules of the instant invention include: PEG conjugated nucleic acids, phospholipid conjugated nucleic acids, nucleic acids containing lipophilic moieties, phosphorothioates, P-glycoprotein inhibitors (such as Pluronic P85) which can enhance entry of drugs into various tissues, for example the CNS (Jolliet-Riant and Tillement, 1999, Fundam. Clin. Pharmacol., 13, 16-26); biodegradable polymers, such as poly (DL-lactide-coglycolide) microspheres for sustained release delivery after implantation (Emerich, DF et al. 1999, Cell Transplant, 8, 47-58) Alkermes, Inc. Cambridge, MA; and loaded nanoparticles, such as those made of polybutylcyanoacrylate, which can deliver drugs across the blood brain barrier and can alter neuronal uptake mechanisms (Prog Neuropsychopharmacol Biol Psychiatry, 23, 941-949, 1999). Other non-limiting examples of delivery strategies, including CNS delivery of the nucleic acid molecules of the instant invention include material described in Boado et al., 1998, J. Pharm. Sci., 87, 1308-1315; Tyler et al., 1999, FEBS Lett., 421, 280-284; Pardridge et al., 1995, PNAS USA., 92, 5592-5596; Boado, 1995, Adv. Drug Delivery Rev., 15, 73-107; Aldrian-Herrada et al., 1998, Nucleic Acids Res., 26, 4910-4916; and Tyler et al., 1999, PNAS USA., 96, 7053-7058. All these references are hereby incorporated herein by reference.

The invention also features the use of the composition comprising surface-modified liposomes containing poly (ethylene glycol) lipids (PEG-modified, or long-circulating liposomes or stealth liposomes). Nucleic acid molecules of the invention can also comprise covalently attached PEG molecules of various molecular weights. These formulations offer a method for increasing the accumulation of drugs in target tissues. This class of drug carriers resists opsonization and elimination by the mononuclear phagocytic system (MPS or RES), thereby enabling longer blood circulation times and enhanced tissue exposure for the encapsulated drug (Lasic et al. Chem. Rev. 1995, 95, 2601-2627; Ishiwata et al., Chem.

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Pharm. Bull. 1995, 43, 1005-1011). Such liposomes have been shown to accumulate selectively in tumors, presumably by extravasation and capture in the neovascularized target tissues (Lasic et al., Science 1995, 267, 1275-1276; Oku et al., 1995, Biochim. Biophys. Acta, 1238, 86-90). The long-circulating liposomes enhance the pharmacokinetics and pharmacodynamics of DNA and RNA, particularly compared to conventional cationic liposomes which are known to accumulate in tissues of the MPS (Liu et al., J. Biol. Chem. 1995, 42, 24864-24870; Choi et al., International PCT Publication No. WO 96/10391; Ansell et al., International PCT Publication No. WO 96/10390; Holland et al., International PCT Publication No. WO 96/10392; all of which are incorporated by reference herein). Long-circulating liposomes are also likely to protect drugs from nuclease degradation to a greater extent compared to cationic liposomes, based on their ability to avoid accumulation in metabolically aggressive MPS tissues such as the liver and spleen. All of these references are incorporated by reference herein.

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The present invention also includes compositions prepared for storage or administration which include a pharmaceutically effective amount of the desired compounds in a pharmaceutically acceptable carrier or diluent. Acceptable carriers or diluents for therapeutic use are well known in the pharmaceutical art, and are described, for example, in *Remington's Pharmaceutical Sciences*, Mack Publishing Co. (A.R. Gennaro edit. 1985) hereby incorporated by reference herein. For example, preservatives, stabilizers, dyes and flavoring agents can be provided. These include sodium benzoate, sorbic acid and esters of phydroxybenzoic acid. In addition, antioxidants and suspending agents can be used.

A pharmaceutically effective dose is that dose required to prevent, inhibit the occurrence, or treat (alleviate a symptom to some extent, preferably all of the symptoms) of a disease state. The pharmaceutically effective dose depends on the type of disease, the composition used, the route of administration, the type of mammal being treated, the physical characteristics of the specific mammal under consideration, concurrent medication, and other factors which those skilled in the medical arts will recognize. Generally, an amount between 0.1 mg/kg and 100 mg/kg body weight/day of active ingredients is administered dependent upon potency of the negatively charged polymer.

The nucleic acid molecules of the invention and formulations thereof can be administered orally, topically, parenterally, by inhalation or spray or rectally in dosage unit formulations containing conventional non-toxic pharmaceutically acceptable carriers, adjuvants and vehicles. The term parenteral as used herein includes percutaneous, subcutaneous, intravascular (e.g., intravenous), intramuscular, or intrathecal injection or

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infusion techniques and the like. In addition, there is provided a pharmaceutical formulation comprising a nucleic acid molecule of the invention and a pharmaceutically acceptable carrier. One or more nucleic acid molecules of the invention can be present in association with one or more non-toxic pharmaceutically acceptable carriers and/or diluents and/or adjuvants, and if desired other active ingredients. The pharmaceutical compositions containing nucleic acid molecules of the invention can be in a form suitable for oral use, for example, as tablets, troches, lozenges, aqueous or oily suspensions, dispersible powders or granules, emulsion, hard or soft capsules, or syrups or elixirs.

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Compositions intended for oral use can be prepared according to any method known to the art for the manufacture of pharmaceutical compositions and such compositions can contain one or more such sweetening agents, flavoring agents, coloring agents or preservative agents in order to provide pharmaceutically elegant and palatable preparations. Tablets contain the active ingredient in admixture with non-toxic pharmaceutically acceptable excipients that are suitable for the manufacture of tablets. These excipients can be for example, inert diluents, such as calcium carbonate, sodium carbonate, lactose, calcium phosphate or sodium phosphate; granulating and disintegrating agents, for example, corn starch, or alginic acid; binding agents, for example starch, gelatin or acacia, and lubricating agents, for example magnesium stearate, stearic acid or talc. The tablets can be uncoated or they can be coated by known techniques. In some cases such coatings can be prepared by known techniques to delay disintegration and absorption in the gastrointestinal tract and thereby provide a sustained action over a longer period. For example, a time delay material such as glyceryl monosterate or glyceryl distearate can be employed.

Formulations for oral use can also be presented as hard gelatin capsules wherein the active ingredient is mixed with an inert solid diluent, for example, calcium carbonate, calcium phosphate or kaolin, or as soft gelatin capsules wherein the active ingredient is mixed with water or an oil medium, for example peanut oil, liquid paraffin or olive oil.

Aqueous suspensions contain the active materials in admixture with excipients suitable for the manufacture of aqueous suspensions. Such excipients are suspending agents, for example sodium carboxymethylcellulose, methylcellulose, hydropropyl-methylcellulose, sodium alginate, polyvinylpyrrolidone, gum tragacanth and gum acacia; dispersing or wetting agents can be a naturally-occurring phosphatide, for example, lecithin, or condensation products of an alkylene oxide with fatty acids, for example polyoxyethylene stearate, or condensation products of ethylene oxide with long chain aliphatic alcohols, for example heptadecaethyleneoxycetanol, or condensation products of ethylene oxide with partial esters

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derived from fatty acids and a hexitol such as polyoxyethylene sorbitol monooleate, or condensation products of ethylene oxide with partial esters derived from fatty acids and hexitol anhydrides, for example polyethylene sorbitan monooleate. The aqueous suspensions can also contain one or more preservatives, for example ethyl, or n-propyl p-hydroxybenzoate, one or more coloring agents, one or more flavoring agents, and one or more sweetening agents, such as sucrose or saccharin.

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Oily suspensions can be formulated by suspending the active ingredients in a vegetable oil, for example arachis oil, olive oil, sesame oil or coconut oil, or in a mineral oil such as liquid paraffin. The oily suspensions can contain a thickening agent, for example beeswax, hard paraffin or cetyl alcohol. Sweetening agents and flavoring agents can be added to provide palatable oral preparations. These compositions can be preserved by the addition of an anti-oxidant such as ascorbic acid.

Dispersible powders and granules suitable for preparation of an aqueous suspension by the addition of water provide the active ingredient in admixture with a dispersing or wetting agent, suspending agent and one or more preservatives. Suitable dispersing or wetting agents or suspending agents are exemplified by those already mentioned above. Additional excipients, for example sweetening, flavoring and coloring agents, can also be present.

Pharmaceutical compositions of the invention can also be in the form of oil-in-water emulsions. The oily phase can be a vegetable oil or a mineral oil or mixtures of these. Suitable emulsifying agents can be naturally-occurring gums, for example gum acacia or gum tragacanth, naturally-occurring phosphatides, for example soy bean, lecithin, and esters or partial esters derived from fatty acids and hexitol, anhydrides, for example sorbitan monocleate, and condensation products of the said partial esters with ethylene oxide, for example polyoxyethylene sorbitan monocleate. The emulsions can also contain sweetening and flavoring agents.

Syrups and elixirs can be formulated with sweetening agents, for example glycerol, propylene glycol, sorbitol, glucose or sucrose. Such formulations can also contain a demulcent, a preservative and flavoring and coloring agents. The pharmaceutical compositions can be in the form of a sterile injectable aqueous or oleaginous suspension. This suspension can be formulated according to the known art using those suitable dispersing or wetting agents and suspending agents that have been mentioned above. The sterile injectable preparation can also be a sterile injectable solution or suspension in a non-toxic parentally acceptable diluent or solvent, for example as a solution in 1,3-butanediol. Among the acceptable vehicles and solvents that can be employed are water, Ringer's solution and

isotonic sodium chloride solution. In addition, sterile, fixed oils are conventionally employed as a solvent or suspending medium. For this purpose any bland fixed oil can be employed including synthetic mono-or diglycerides. In addition, fatty acids such as oleic acid find use in the preparation of injectables.

The nucleic acid molecules of the invention can also be administered in the form of suppositories, e.g., for rectal administration of the drug. These compositions can be prepared by mixing the drug with a suitable non-irritating excipient that is solid at ordinary temperatures but liquid at the rectal temperature and will therefore melt in the rectum to release the drug. Such materials include cocoa butter and polyethylene glycols.

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Nucleic acid molecules of the invention can be administered parenterally in a sterile medium. The drug, depending on the vehicle and concentration used, can either be suspended or dissolved in the vehicle. Advantageously, adjuvants such as local anesthetics, preservatives and buffering agents can be dissolved in the vehicle.

Dosage levels of the order of from about 0.1 mg to about 140 mg per kilogram of body weight per day are useful in the treatment of the above-indicated conditions (about 0.5 mg to about 7 g per patient per day). The amount of active ingredient that can be combined with the carrier materials to produce a single dosage form varies depending upon the host treated and the particular mode of administration. Dosage unit forms generally contain between from about 1 mg to about 500 mg of an active ingredient.

It is understood that the specific dose level for any particular patient depends upon a variety of factors including the activity of the specific compound employed, the age, body weight, general health, sex, diet, time of administration, route of administration, and rate of excretion, drug combination and the severity of the particular disease undergoing therapy.

For administration to non-human animals, the composition can also be added to the animal feed or drinking water. It can be convenient to formulate the animal feed and drinking water compositions so that the animal takes in a therapeutically appropriate quantity of the composition along with its diet. It can also be convenient to present the composition as a premix for addition to the feed or drinking water.

The nucleic acid molecules of the present invention can also be administered to a patient in combination with other therapeutic compounds to increase the overall therapeutic effect. The use of multiple compounds to treat an indication can increase the beneficial effects while reducing the presence of side effects.

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Alternatively, certain of the nucleic acid molecules of the instant invention can be expressed within cells from eukaryotic promoters (e.g., Izant and Weintraub, 1985, Science, 229, 345; McGarry and Lindquist, 1986, Proc. Natl. Acad. Sci., USA 83, 399; Scanlon et al., 1991, Proc. Natl. Acad. Sci. USA, 88, 10591-5; Kashani-Sabet et al., 1992, Antisense Res. Dev., 2, 3-15; Dropulic et al., 1992, J. Virol., 66, 1432-41; Weerasinghe et al., 1991, J. Virol., 65, 5531-4; Ojwang et al., 1992, Proc. Natl. Acad. Sci. USA, 89, 10802-6; Chen et al., 1992, Nucleic Acids Res., 20, 4581-9; Sarver et al., 1990 Science, 247, 1222-1225; Thompson et al., 1995, Nucleic Acids Res., 23, 2259; Good et al., 1997, Gene Therapy, 4, 45; all of these references are hereby incorporated in their totalities by reference herein). Those skilled in the art realize that any nucleic acid can be expressed in eukaryotic cells from the appropriate DNA/RNA vector. The activity of such nucleic acids can be augmented by their release from the primary transcript by a enzymatic nucleic acid (Draper et al., PCT WO 93/23569, and Sullivan et al., PCT WO 94/02595; Ohkawa et al., 1992, Nucleic Acids Symp. Ser., 27, 15-6; Taira et al., 1991, Nucleic Acids Res., 19, 5125-30; Ventura et al., 1993, Nucleic Acids Res., 21, 3249-55; Chowrira et al., 1994, J. Biol. Chem., 269, 25856; all of these references are hereby incorporated in their totalities by reference herein). Gene therapy approaches specific to the CNS are described by Blesch et al., 2000, Drug News Perspect., 13, 269-280; Peterson et al., 2000, Cent. Nerv. Syst. Dis., 485-508; Peel and Klein, 2000, J. Neurosci. Methods, 98, 95-104; Hagihara et al., 2000, Gene Ther., 7, 759-763; and Herrlinger et al., 2000, Methods Mol. Med., 35, 287-312. AAV-mediated delivery of nucleic acid to cells of the nervous system is further described by Kaplitt et al., US 6,180,613.

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In another aspect of the invention, RNA molecules of the present invention are preferably expressed from transcription units (see for example Couture et al., 1996, TIG., 12, 510) inserted into DNA or RNA vectors. The recombinant vectors are preferably DNA plasmids or viral vectors. Ribozyme expressing viral vectors can be constructed based on, but not limited to, adeno-associated virus, retrovirus, adenovirus, or alphavirus. Preferably, the recombinant vectors capable of expressing the nucleic acid molecules are delivered as described above, and persist in target cells. Alternatively, viral vectors can be used that provide for transient expression of nucleic acid molecules. Such vectors can be repeatedly administered as necessary. Once expressed, the nucleic acid molecule binds to the target mRNA. Delivery of nucleic acid molecule expressing vectors can be systemic, such as by intravenous or intra-muscular administration, by administration to target cells ex-planted from the patient followed by reintroduction into the patient, or by any other means that would allow for introduction into the desired target cell (for a review see Couture et al., 1996, TIG., 12, 510).

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In one aspect the invention features an expression vector comprising a nucleic acid sequence encoding at least one of the nucleic acid molecules of the instant invention. The nucleic acid sequence encoding the nucleic acid molecule of the instant invention is operably linked in a manner which allows expression of that nucleic acid molecule.

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In another aspect the invention features an expression vector comprising: a) a transcription initiation region (e.g., eukaryotic pol I, II or III initiation region); b) a transcription termination region (e.g., eukaryotic pol I, II or III termination region); c) a nucleic acid sequence encoding at least one of the nucleic acid catalyst of the instant invention; and wherein said sequence is operably linked to said initiation region and said termination region, in a manner which allows expression and/or delivery of said nucleic acid molecule. The vector can optionally include an open reading frame (ORF) for a protein operably linked on the 5' side or the 3'-side of the sequence encoding the nucleic acid catalyst of the invention; and/or an intron (intervening sequences).

Transcription of the nucleic acid molecule sequences are driven from a promoter for eukaryotic RNA polymerase I (pol I), RNA polymerase II (pol II), or RNA polymerase III (pol III). Transcripts from pol II or pol III promoters are expressed at high levels in all cells; the levels of a given pol II promoter in a given cell type depends on the nature of the gene regulatory sequences (enhancers, silencers, etc.) present nearby. Prokaryotic RNA polymerase promoters are also used, providing that the prokaryotic RNA polymerase enzyme is expressed in the appropriate cells (Elroy-Stein and Moss, 1990, Proc. Natl. Acad. Sci. US A, 87, 6743-7; Gao and Huang 1993, Nucleic Acids Res., 21, 2867-72; Lieber et al., 1993, Methods Enzymol., 217, 47-66; Zhou et al., 1990, Mol. Cell. Biol., 10, 4529-37). All of these references are incorporated by reference herein. Several investigators have demonstrated that nucleic acid molecules, such as ribozymes expressed from such promoters can function in mammalian cells (e.g. Kashani-Sabet et al., 1992, Antisense Res. Dev., 2, 3-15; Ojwang et al., 1992, Proc. Natl. Acad. Sci. U S A, 89, 10802-6; Chen et al., 1992, Nucleic Acids Res., 20, 4581-9; Yu et al., 1993, Proc. Natl. Acad. Sci. U S A, 90, 6340-4; L'Huillier et al., 1992, EMBO J., 11, 4411-8; Lisziewicz et al., 1993, Proc. Natl. Acad. Sci. U. S. A, 90, 8000-4; Thompson et al., 1995, Nucleic Acids Res., 23, 2259; Sullenger & Cech, 1993, Science, 262, 1566). More specifically, transcription units such as the ones derived from genes encoding U6 small nuclear (snRNA), transfer RNA (tRNA) and adenovirus VA RNA are useful in generating high concentrations of desired RNA molecules such as ribozymes in cells (Thompson et al., supra; Couture and Stinchcomb, 1996, supra; Noonberg et al., 1994, Nucleic Acid Res., 22, 2830; Noonberg et al., US Patent No. 5,624,803; Good et al., 1997, Gene Ther., 4, 45; Beigelman et al., International PCT Publication No. WO

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96/18736; all of these publications are incorporated by reference herein. The above ribozyme transcription units can be incorporated into a variety of vectors for introduction into mammalian cells, including but not restricted to, plasmid DNA vectors, viral DNA vectors (such as adenovirus or adeno-associated virus vectors), or viral RNA vectors (such as retroviral or alphavirus vectors) (for a review see Couture and Stinchcomb, 1996, supra).

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In another aspect the invention features an expression vector comprising nucleic acid sequence encoding at least one of the nucleic acid molecules of the invention, in a manner which allows expression of that nucleic acid molecule. The expression vector comprises in one embodiment; a) a transcription initiation region; b) a transcription termination region; c) a nucleic acid sequence encoding at least one said nucleic acid molecule; and wherein said sequence is operably linked to said initiation region and said termination region, in a manner which allows expression and/or delivery of said nucleic acid molecule.

In another embodiment the expression vector comprises: a) a transcription initiation region; b) a transcription termination region; c) an open reading frame; d) a nucleic acid sequence encoding at least one said nucleic acid molecule, wherein said sequence is operably linked to the 3'-end of said open reading frame; and wherein said sequence is operably linked to said initiation region, said open reading frame and said termination region, in a manner which allows expression and/or delivery of said nucleic acid molecule. In yet another embodiment the expression vector comprises: a) a transcription initiation region; b) a transcription termination region; c) an intron; d) a nucleic acid sequence encoding at least one said nucleic acid molecule; and wherein said sequence is operably linked to said initiation region, said intron and said termination region, in a manner which allows expression and/or delivery of said nucleic acid molecule.

In another embodiment, the expression vector comprises: a) a transcription initiation region; b) a transcription termination region; c) an intron; d) an open reading frame; e) a nucleic acid sequence encoding at least one said nucleic acid molecule, wherein said sequence is operably linked to the 3'-end of said open reading frame; and wherein said sequence is operably linked to said initiation region, said intron, said open reading frame and said termination region, in a manner which allows expression and/or delivery of said nucleic acid molecule.

Flt-1 (VEGFR1), KDR (VEGFR2) and/or flk-1 are attractive nucleic acid-based therapeutic targets by several criteria. The interaction between VEGF and VEGF-R is well-established. Efficacy can be tested in well-defined and predictive animal models. Finally, the disease conditions are serious and current therapies are inadequate. Whereas protein-based

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therapies are designed to affect VEGF activity, nucleic acid-based therapy based on the molecules and methods described herein provides a direct and elegant approach to directly modulate flt-1, KDR and/or flk-1 expression.

Because VEGFR1 and VEGFR2 mRNAs are highly homologous in certain regions, some nucleic acid target sites are also homologous. In this case, a single nucleic acid molecule of the invention can target both VEGFR1 and VEGFR2 mRNAs. At partially homologous sites, a single nucleic acid molecule can sometimes be designed to accommodate a site on both mRNAs by including G/U base pairing. For example, if there is a G present in a enzymatic nucleic acid target site in VEGFR1 mRNA at the same position there is an A in the VEGFR2 enzymatic nucleic acid target site, the enzymatic nucleic acid can be synthesized with a U at the complementary position and it will bind both to sites. The advantage of one enzymatic nucleic acid that targets both VEGFR1 and VEGFR2 mRNAs is clear, especially in cases where both VEGF receptors may contribute to the progression of angiogenesis in the disease state.

15 Examples

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The following are non-limiting examples showing the selection, isolation, synthesis and activity of exemplary nucleic acids of the instant invention.

The following examples demonstrate the selection and design of antisense, aptamer, dsRNA, allozyme, hammerhead, DNAzyme, NCH, Amberzyme, Zinzyme, or G-Cleaver ribozyme molecules and binding/cleavage sites within VEGF, VEGFR1 and/or VEGFR2 RNA.

Example 1: Enzymatic nucleic acid-mediated inhibition of angiogenesis in vivo

The study described below was performed to assess the anti-angiogenic activity of hammerhead ribozymes targeted against flt-1 4229 site (SED ID NO: 5977) in the rat comea model of VEGF induced angiogenesis (see above). These ribozymes have either active or inactive catalytic core and either bind and cleave or just bind to VEGF-R mRNA of the flt-1 subtype. The active ribozymes, that are able to bind and cleave the target RNA, have been shown to inhibit (125I-labeled) VEGF binding in cultured endothelial cells and produce a dose-dependent decrease in VEGF induced endothelial cell proliferation in these cells. The catalytically inactive forms of these ribozymes, which can only bind to the RNA but cannot catalyze RNA cleavage, failed to inhibit VEGF binding and failed to decrease VEGF induced endothelial cell proliferation. The ribozymes and VEGF were co-delivered using the filter

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disk method: Nitrocellulose filter disks (Millipore®) of 0.057 diameter were immersed in appropriate solutions and were surgically implanted in rat cornea as described by Pandey et al., supra. This delivery method has been shown to deliver rhodamine-labeled free ribozyme to scleral cells and, in all likelihood cells of the pericorneal vascular plexus. Since the active ribozymes show cell culture efficacy and can be delivered to the target site using the disk method, it is essential that these ribozymes be assessed for in vivo anti-angiogenic activity.

The stimulus for angiogenesis in this study was the treatment of the filter disk with 30 µM VEGF which is implanted within the cornea's stroma. This dose yields reproducible neovascularization stemming from the pericorneal vascular plexus growing toward the disk in a dose-response study 5 days following implant. Filter disks treated only with the vehicle for VEGF show no angiogenic response. The ribozymes were co-administered with VEGF on a disk in two different ribozyme concentrations. One concern with the simultaneous administration is that the ribozymes will not be able to inhibit angiogenesis since VEGF receptors can be stimulated. However, we have observed that in low VEGF doses, the neovascular response reverts to normal suggesting that the VEGF stimulus is essential for maintaining the angiogenic response. Blocking the production of VEGF receptors using simultaneous administration of anti-VEGF-R mRNA ribozymes could attenuate the normal neovascularization induced by the filter disk treated with VEGF.

Materials and Methods:

20 1. Stock hammerhead ribozyme solutions:

a. flt-1 4229 (786 μM)- Active

b. flt-1 4229 (736 µM)- Inactive

2. Experimental solutions/groups:

Group 1 Solution 1 Control VEGF solution: 30 µM in 82mM Tris base

25 Group 2 Solution 2 flt-1 4229 (1 μg/μL) in 30 μM VEGF/82 mM Tris base

Group 3 Solution 3 flt-1 4229 (10 μg/μL) in 30 μM VEGF/82 mM Tris base

Group 4 Solution 4 No VEGF, flt-1 4229 (10 µg/µL) in 82 mM Tris base

Group 5 Solution 5 No VEGF, No ribozyme in 82 mM Tris base

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10 eyes per group, 5 animals (Since they have similar molecular weights, the molar concentrations should be essentially similar).

Each solution (VEGF and RIBOZYMES) were prepared as a 2X solution for 1:1 mixing for final concentrations above, with the exception of solution 1 in which VEGF was 2X and diluted with ribozyme diluent (sterile water).

3. <u>VEGF Solutions</u>

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The 2X VEGF solution (60 µM) was prepared from a stock of 0.82 µg/µL in 50 mM Tris base. 200 µL of VEGF stock was concentrated by speed vac to a final volume of 60.8 µL, for a final concentration of 2.7 µg/µL or 60 µM. Six 10 µL aliquots was prepared for daily mixing. 2X solutions for VEGF and Ribozyme was stored at 4°C until the day of the surgery. Solutions were mixed for each day of surgery. Original 2X solutions was prepared on the day before the first day of the surgery.

4. <u>Surgical Solutions:</u>

Anesthesia:

stock ketamine hydrochloride 100 mg/mL

stock xylazine hydrochloride 20 mg/mL

stock acepromazine 10 mg/mL

<u>Final anesthesia solution</u>: 50 mg/mL ketamine, 10 mg/mL xylazine, and 0.5 mg/mL acepromazine

20 5% povidone iodine for opthalmic surgical wash

2% lidocaine (sterile) for opthalmic administration (2 drops per eye)

sterile 0.9% NaCl for opthalmic irrigation

5. Surgical Methods:

Standard surgical procedure as described in Pandey et al., supra. Filter disks were incubated in 1 µL of each solution for approximately 30 minutes prior to implantation.

6. <u>Experimental Protocol:</u>

The animal cornea were treated with the treatment groups as described above. Animals were allowed to recover for 5 days after treatment with daily observation (scoring 0 - 3). On the fifth day animals were euthanized and digital images of each eye was obtained for quantitation using Image Pro Plus. Quantitated neovascular surface area were analyzed by ANOVA followed by two post-hoc tests including Dunnets and Tukey-Kramer tests for significance at the 95% confidence level. Dunnets provide information on the significance between the differences within the means of treatments vs. controls while Tukey-Kramer provide information on the significance of differences within the means of each group.

The fit-1 4229 (SEQ ID NO: 5977) active hammerhead ribozyme at both concentrations was effective at inhibiting angiogenesis while the inactive ribozyme did not show any significant reduction in angiogenesis. A statistically signifiant reduction in neovascular surface area was observed only with active ribozymes. This result clearly shows that the ribozymes are capable of significantly inhibiting angiogenesis *in vivo*. Specifically, given ribozyme mechanism of action, the observed inhibition is by the binding and cleavage of target RNA by ribozymes.

Example 2: Bioactivity of anti-angiogenesis ribozymes targeting flt-1 and kdr RNA

MATERIALS AND METHODS

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Ribozymes: Hammerhead ribozymes and controls designed to have attenuated activity (attenuated controls) were synthesized and purified as previously described above. The attenuated ribozyme controls maintain the binding arm sequence of the parent ribozyme and thus are still capable of binding to the mRNA target. However, they have two nucleotide changes in the core sequence that substantially reduce their ability to carry out the cleavage reaction. Ribozymes were designed to target Flt-1 or KDR mRNA sites conserved in human, mouse, and rat. In general, ribozymes with binding arms of seven nucleotides were designed and tested. If, however, only six nucleotides surrounding the cleavage site were conserved in all three species, six nucleotide binding arms were used. Data are presented herein for 2'-NH2 uridine modified ribozymes in cell proliferation studies and for 2'-C-allyl uridine modified ribozymes in RNAse protection, in vitro cleavage and corneal studies.

In vitro ribozyme cleavage assays: In vitro RNA cleavage rates on a 15 nucleotide synthetic RNA substrate were measured as previously described above.

Cell culture: Human dermal microvascular endothelial cells (HMVEC-d, Clonetics Corp.) were maintained at 37°C in flasks or plates coated with 1.5% porcine skin gelatin (300

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bloom, Sigma) in Growth medium (Clonetics Corp.) supplemented with 10-20% fetal bovine serum (FBS, Hyclone). Cells were grown to confluency and used up to the seventh passage. Stimulation medium consisted of 50% Sigma 99 media and 50% RPMI 1640 with L-glutamine and additional supplementation with 10 μg/mL Insulin-Transferrin-Selenium (Gibco BRL) and 10% FBS. Cell growth was stimulated by incubation in Stimulation medium supplemented with 20 ng/mL of either VEGF₁₆₅ or bFGF. VEGF₁₆₅ (165 amino acids) was selected for cell culture and animal studies because it is the predominant form of the four native forms of VEGF generated by alternative mRNA splicing. Cell culture assays were carried out in triplicate.

10 Ribozyme and ribozyme/LIPOFECTAMINE™ formulations:

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Cell culture: Ribozymes or attenuated controls (50-200 nM) were formulated for cell culture studies and used immediately. Formulations were carried out with LIPOFECTAMINETM (Gibco BRL) at a 3:1 lipid to phosphate charge ratio in serum-free medium (OPTI-MEMTM, Gibco BRL) by mixing for 20 minutes at room temperature. For example, a 3:1 lipid to phosphate charge ratio was established by complexing 200 nM ribozyme with 10.8 µg/µL LIPOFECTAMINETM (13.5 µM DOSPA).

In vivo: For corneal studies, lyophilized ribozyme or attenuated controls were resuspended in sterile water at a final stock concentration of 170 μ g/ μ L (highest dose). Lower doses (1.7-50 μ g/ μ L) were prepared by serial dilution in sterile water.

Proliferation assay: HMVEC-d were seeded (5 x 10³ cells/well) in 48-well plates (Costar) and incubated 24-30 hours in Growth medium at 37°C. After removal of the Growth medium, cells were treated with 50-200 nM LIPOFECTAMINETM complexes of ribozyme or attenuated controls for 2 hours in OPTI-MEMTM. The ribozyme/control-containing medium was removed and the cells were washed extensively in 1X PBS. The medium was then replaced with Stimulation medium or Stimulation medium supplemented with 20 ng/mL VEGF₁₆₅ or bFGF. After 48 hours, the cell number was determined using a CoulterTM cell counter. Data are presented as cell number per well following 48 hours of VEGF stimulation.

RNAse protection assay: HMVEC-d were seeded (2 x 10⁵ cells/well) in 6-well plates (Costar) and allowed to grow 32-36 hours in Growth medium at 37°C. Cells were treated with LPOFECTAMINE™ complexes containing 200 nM ribozyme or attenuated control for 2 h as described under "Proliferation Assay" and then incubated in Growth medium containing 20 ng/mL VEGF₁₆₅ for 24 hours. Cells were harvested and an RNAse protection assay was carried out using the Ambion Direct Protect kit and protocol with the exception that 50 mM

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EDTA was added to the lysis buffer to eliminate the possibility of ribozyme cleavage during sample preparation. Antisense RNA probes targeting portions of Flt-1 and KDR were prepared by transcription in the presence of [32 P]-UTP. Samples were analyzed on polyacrylamide gels and the level of protected RNA fragments was quantified using a Molecular Dynamics PhosphorImager. The levels of Flt-1 and KDR were normalized to the level of cyclophilin (human cyclophilin probe template, Ambion) in each sample. The coefficient of variation for cyclophilin levels was 11% [265940 cpm \pm 29386 (SD)] for all conditions tested here (i.e. in the presence of either active ribozymes or attenuated controls). Thus, cyclophilin is useful as an internal standard in these studies.

10 Rat corneal pocket assay of VEGF-induced angiogenesis:

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Animal guidelines and anesthesia. Animal housing and experimentation adhered to standards outlined in the 1996 Guide for the Care and Use of Laboratory Animals (National Research Council). Male Sprague Dawley rats (250-300 g) were anesthetized with ketamine (50 mg/kg), xylazine (10 mg/kg), and acepromazine (0.5 mg/kg) administered intramuscularly (im). The level of anesthesia was monitored every 2-3 min by applying hind limb paw pressure and examining for limb withdrawal. Atropine (0.4 mg/kg, im) was also administered to prevent potential corneal reflex-induced bradycardia.

Preparation of VEGF soaked disk. For corneal implantation, 0.57 mm diameter nitrocellulose disks, prepared from 0.45 μm pore diameter nitrocellulose filter membranes (Millipore Corporation), were soaked for 30 min in 1 μL of 30 μM VEGF₁₆₅ in 82 mM Tris HCl (pH 6.9) in covered petri dishes on ice.

Corneal surgery. The rat corneal model used in this study was a modified from Koch et al. Supra and Pandey et al., supra. Briefly, corneas were irrigated with 0.5% povidone iodine solution followed by normal saline and two drops of 2% lidocaine. Under a dissecting microscope (Leica MZ-6), a stromal pocket was created and a presoaked filter disk (see above) was inserted into the pocket such that its edge was 1 mm from the corneal limbus.

Intraconjunctival injection of test solutions. Immediately after disk insertion, the tip of a 40-50 µm OD injector (constructed in our laboratory) was inserted within the conjunctival tissue 1 mm away from the edge of the corneal limbus that was directly adjacent to the VEGF-soaked filter disk. Six hundred nanoliters of test solution (ribozyme, attenuated control or sterile water vehicle) were dispensed at a rate of 1.2 µL/min using a syringe pump (Kd Scientific). The injector was then removed, serially rinsed in 70% ethanol and sterile water and immersed in sterile water between each injection. Once the test solution was injected,

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closure of the eyelid was maintained using microaneurism clips until the animal began to recover gross motor activity. Following treatment, animals were warmed on a heating pad at 37°C.

Animal treatment groups/experimental protocol. Ribozymes targeting Flt-1 site 4229 (SEQ ID NO: 5977) and KDR mRNA site 726 (SEQ ID NO: 5978) were tested in the corneal model along with their attenuated controls. Five treatment groups were assigned to examine the effects of five doses of each test substance over a dose range of 1-100 µg on VEGF-stimulated angiogenesis. Negative (30 µM VEGF soaked filter disk and intraconjunctival injection of 600 nL sterile water) and no stimulus (Tris-soaked filter disk and intraconjunctival injection of sterile water) control groups were also included. Each group consisted of five animals (10 eyes) receiving the same treatment.

Quantitation of angiogenic response. Five days after disk implantation, animals were euthanized following im administration of 0.4 mg/kg atropine and corneas were digitally imaged. The neovascular surface area (NSA, expressed in pixels) was measured postmortem from blood-filled corneal vessels using computerized morphometry (Image Pro Plus, Media Cybernetics, v2.0). The individual mean NSA was determined in triplicate from three regions of identical size in the area of maximal neovascularization between the filter disk and the limbus. The number of pixels corresponding to the blood-filled corneal vessels in these regions was summated to produce an index of NSA. A group mean NSA was then calculated. Data from each treatment group were normalized to VEGF/ribozyme vehicle-treated control NSA and finally expressed as percent inhibition of VEGF-induced angiogenesis.

Statistics. After determining the normality of treatment group means, group mean percent inhibition of VEGF-induced angiogenesis was subjected to a one-way analysis of variance. This was followed by two post-hoc tests for significance including Durmett's (comparison to VEGF control) and Tukey-Kramer (all other group mean comparisons) at alpha = 0.05. Statistical analyses were performed using JMP v.3.1.6 (SAS Institute).

RESULTS

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Ribozyme-mediated reduction of VEGF-induced cell proliferation: Ribozyme cleavage of Flt-1 or KDR mRNA should result in a decrease in the density of cell surface VEGF receptors. This decrease should limit VEGF binding and consequently interfere with the mitogenic signaling induced by VEGF. To determine if cell proliferation was impacted by anti-Flt-1 and/or anti-KDR ribozyme treatment, proliferation assays using cultured human microvascular cells were carried out. Ribozymes included in the proliferation assays were

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initially chosen by their ability to decrease the level of VEGF binding to treated cells. In these initial studies, ribozymes targeting 20 sites in the coding region of each mRNA were screened. The most effective ribozymes against two sites in each target, Flt-1 sites 1358 and 4229 and KDR sites 726 and 3950, were included in the proliferation assays reported here. In addition, attenuated analogs of each ribozyme were used as controls. These attenuated controls are still capable of binding to the mRNA target since the binding arm sequence is maintained. However, these controls have two nucleotide changes in the core sequence that substantially reduce their ability to carry out the cleavage reaction.

The active ribozymes tested decreased the relative proliferation of HMVEC-d after VEGF stimulation, an effect that increased with ribozyme concentration. This concentration dependency was not observed following treatment with the attenuated controls designed for these sites. In fact, little or no change in cell growth was noted following treatment with the attenuated controls, even though these controls can still bind to the specific target sequences. At 200 nM, there was a distinct "window" between the anti-proliferative effects of each ribozyme and its attenuated control; a trend also observed at lower doses. This window of inhibition of proliferation (56-77% based on total cells/well) reflects the contribution of ribozyme-mediated activity. In comparison, no effect of anti-Flt-1 or anti-KDR ribozymes was noted on bFGF-stimulated cell proliferation. Moreover, an irrelevant, but active, ribozyme whose binding sequence is not found in either Flt-1 or KDR mRNA had no effect in this assay. These data are consistent with the basic ribozyme mechanism in which binding and cleavage are necessary components. Although the relative surface distribution of Flt-1 and KDR receptors in this cell type is not known, the antiproliferative effects of these ribozymes indicate that, at least in cell culture, both receptors are functionally coupled to proliferation.

Specific reduction of Flt-1 or KDR mRNA by ribozyme treatment: To confirm that anti-Flt-1 and anti-KDR ribozymes reduce their respective mRNA targets, cellular levels of Flt-1 or KDR were quantified using an RNAse protection assay with specific Flt-1 or KDR probes. For each target, one ribozyme/attenuated control pair was chosen for continued study. Exposure of HMVEC-d to active ribozyme targeting Flt-1 site 4229 decreased Flt-1 mRNA, but not KDR mRNA. Likewise, treatment with the active ribozyme targeting KDR site 726 decreased KDR, but not Flt-1 mRNA. Both ribozymes decreased the level of their respective target RNA by greater than 50%. The degree of reduction associated with the corresponding attenuated controls was not greater than 13%.

In vitro activity of anti-Flt and anti-KDR ribozymes.

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To confirm further the necessity of an active ribozyme core, in vitro cleavage activities were determined for the Flt-1 site 4229 ribozyme and the KDR site 726 ribozyme as well as their paired attenuated controls. The first order rate constants calculated from the time-course of short substrate cleavage for the anti-Flt-1 ribozyme and its attenuated control were 0.081 \pm 0.0007 min⁻¹ and 0.001 \pm 6 x 10⁻⁵ min⁻¹, respectively. For the anti-KDR ribozyme and its paired control, the first order rate constants were 0.434 \pm 0.024 min⁻¹ and 0.002 \pm 1 x 10⁻⁴ min⁻¹, respectively. Although the attenuated controls retain a very slight level of cleavage activity under these optimized conditions, the decrease in *in vitro* cleavage activity between each active ribozyme and its paired attenuated control is about two orders of magnitude. Thus, an active core is essential for cleavage activity *in vitro* and is also necessary for ribozyme activity in cell culture.

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Ribozyme-mediated reduction of VEGF-induced angiogenesis in vivo. To assess whether ribozymes targeting VEGF receptor mRNA could impact the complex process of angiogenesis, prototypic anti-Flt-1 and KDR ribozymes that were identified in cell culture studies were screened in a rat corneal pocket assay of VEGF-induced angiogenesis. In this assay, corneas implanted with VEGF-containing filter disks exhibited a robust neovascular response in the corneal region between the disk and the corneal limbus (from which the new vessels emerge). Disks containing a vehicle solution elicited no angiogenic response. In separate studies, intraconjunctival injections of sterile water vehicle did not affect the magnitude of the VEGF-induced angiogenic response. In addition, ribozyme injections alone did not induce angiogenesis.

The dose-related effects of anti-Flt-1 or KDR ribozymes on the VEGF-induced angiogenic response were then examined. The antiangiogenic effect of the anti-Flt-1 (site 4229) and KDR (site 726) ribozymes and their attenuated controls over a dose range from 1 to 100 µg, respectively was determined. For both ribozymes, the maximal antiangiogenic response (48 and 36% for anti-Flt-1 and KDR ribozymes, respectively) was observed at a dose of 10 µg.

The anti-Flt-1 ribozyme produced a significantly greater antiangiogenic response than its attenuated control at 3 and 10 μ g (p<0.05). Its attenuated control exhibited a small but significant antiangiogenic response at doses above 10 μ g compared to vehicle treated VEGF controls (p<0.05). At its maximum, this response was not significantly greater than that observed with the lowest dose of active anti-Flt-1 ribozyme. The anti-KDR ribozyme significantly inhibited angiogenesis from 3 to 30 μ g (p<0.05). The anti-KDR attenuated control had no significant effect at any dose tested.

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Example 3. In vivo inhibition of tumor growth and metastases by VEGF-R ribozymes.

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A. Lewis Lung Carcinoma Mouse Model: Ribozymes were chemically synthesized as described above. The sequence of ANGIOZYME™ bound to its target RNA is shown in Figure 1.

The tumors in this study were derived from a cell line (LLC-HM) which gives rise to reproducible numbers of spontaneous lung metastases when propagated in vivo. The LLC-HM line was obtained from Dr. Michael O'Reilly, Harvard University. neovascularization in Lewis lung carcinoma has been shown to be VEGF-dependent. Tumors from mice bearing LLC-HM (selected for the highly metastatic phenotype by serial propagation) were harvested 20 days post-inoculation. A tumor brei suspension was prepared from these tumors according to standard protocols. On day 0 of the study, 0.5×10^6 viable LLC-HM tumor cells were injected subcutaneously (sc) into the dorsum or flank of previously untreated mice (100 µL injectate). Tumors were allowed to grow for a period of 3 days prior to initiating continuous intravenous administration of saline or 30 mg/kg/d ANGIOZYMETM via Alzet mini-pumps. One set of animals was dosed from days 3 to 17, inclusive. Tumor length and width measurements and volumes were calculated according to the formula: Volume = 0.5(length)(width)². At post-inoculation day 25, animals were euthanized and lungs harvested. The number of lung macrometastatic nodules was counted. It should be noted that metastatic foci were quantified 8 days after the cessation of dosing. Ribozyme solutions were prepared to deliver to another set of animals 100, 10, 3, or 1 mg/kg/day of ANGIOZYME™ via Alzet mini-pumps. A total of 10 animals per dose or saline control group were surgically implanted on the left flank with osmotic mini-pumps prefilled with the respective test solution three days following tumor inoculation. Pumps were attached to indwelling jugular vein catheters.

Figure 2 shows the antitumor effects of ANGIOZYMETM. There is a statistically significant inhibition (p < 0.05) of primary LLC-HM tumor growth in tumors grown in the flank regions compared to saline control. ANGIOZYMETM significantly reduced (p < 0.05) the number of lung metastatic foci in animals inoculated either in the flank regions. Figure 3 illustrates the dose-dependent anti-metastatic effect of ANGIOZYMETM compared to saline control.

B. Mouse Colorectal Cancer Model. KM12L4a-16 is a human colorectal cancer cell line. On day 0 of the study, 0.5 x 10⁶ KM12L4a-16 cells were implanted into the spleen of nude mice. Three days after tumor inoculation, Alzet minipumps were implanted and continuous subcutaneous delivery of either saline or 12, 36 or 100 mg/kg/ day of

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ANGIOZYME™ was initiated. On day 5, the spleens containing the primary tumors were removed. On day 18, the Alzet minipumps were replaced with fresh pumps so that delivery of saline or ANGIOZYME™ was continuous over a 28 day period from day 3 to day 32. Animals were euthanized on day 41 and the liver tumor burden was evaluated.

Following treatment with 100 mg/kg/day of ANGIOZYME™, there was a significant reduction in the incidence and median number of liver metastasis (Figure 4). In salinetreated animals, the median number of metastases was 101. However, at the high dose of ANGIOZYME™ (100 mg/kg/day), the median number of metastases was zero.

Example 4: Effect of ANGIOZYMETM alone or in combination with chemotherapeutic agents in the mouse Lewis Lung Carcinoma Model.

Methods

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Tumor inoculations. Male C57/BL6 mice, age 6 to 8 weeks, were inoculated subcutaneously in the flank with 5 x 10⁵ LLC-HM cells from brei preparations made from tumors grown in mice.

15 Ribozymes and controls. RPI.4610, also known as ANGIOZYME™ (SEQ ID NO: 5977), is an anti-Flt-1 ribozyme that targets site 4229 in the human Flt-1 receptor mRNA (EMBL accession no. X51602). The controls tested include RPI.13141, an attenuated version of RPI.4610 in which four nucleotides in the catalytic core are changed so that the cleavage activity is dramatically decreased. RPL13141, however, maintains the base composition and 20 binding arms of RPI.4610 and so is still capable of binding to the target site. The second control (RPI.13030) also has changes to the catalytic core (three) to inhibit cleavage activity, but in addition the sequence of the binding arms has been scrambled so that it can no longer bind to the target sequence. One nucleotide in the arm of RPI.13030 is also changed to maintain the same base composition as RPL4610.

25 Ribozyme administrations. Ribozymes and controls were resuspended in normal saline. Administration was initiated seven days following tumor inoculation. Animals either received a daily subcutaneous injection (30 mg/kg test substance) from day 7 to day 20 or were instrumented with an Alzet osmotic minipump (12 μL/day flow rate) containing a solution of ribozyme or control. Subcutaneous infusion pumps delivered the test substances (30 mg/kg/day) from day 7 to 20 (14-day pumps, 420 mg/kg total test substance) or days 7-34 (28-day pumps, 840 mg/kg total test substance). Where indicated, chemotherapeutic agents were given in combination with ribozyme treatment. Cyclophosphamide was given by intraperitoneal administration on days 7, 9 and 11 (125 mg/kg). Gemcitabine was given by

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intraperitoneal administration on days 8, 11 and 14 (125 mg/kg). Untreated, uninstrumented animals were used as comparison. Five animals were included in each group.

Results

The antiangiogenic ribozyme, ANGIOZYME™, was tested in a model of Lewis lung carcinoma alone and in combination with two chemotherapeutic agents. Previously (see above), 30 mg/kg/day ANGIOZYME™ alone was determined to inhibit both primary tumor growth and lung metastases in a highly metastatic variant of Lewis lung (continuous 14-day iv deliveryvia Alzet minipump, manuscript in preparation).

In this study, 30 mg/kg/day ANGIOZYME™ delivered either as a daily subcutaneous bolus injection or as a continuous infusion from an Alzet minipump resulted in a delay in tumor growth. On average, tumor growth to 500 mm³ was delayed by ~7 days in animals being treated with ANGIOZYME™ compared to an untreated group. Growth of tumors in animals being treated with either of two attenuated controls was delayed by only ~ 2 days.

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ANGIOZYMETM delivered by subcutaneous bolus was also tested in combination with either Gemcytabine or cyclophosphamide. Tumor growth delay increased by about 3 days in the presence of combination therapy with ANGIOZYMETM and Gemcytabine over the effects of either treatment alone. The combination of ANGIOZYMETM and cyclophosphamide did not increase tumor growth delay over that of cyclophosphamide alone, however, suboptimal doses of cyclophosphamide were not included in this study. Neither of the attenuated controls increased the effect of the chemotherapeutic agents.

The effect of ANGIOZYMETM on metastases to the lung was also determined in the presence and absence of additional chemotherapeutic treatment. Macrometastases to the lungs were counted in two animals in each treatment group on day 20. In the presence of ANGIOZYMETM, with or without a chemotherapeutic agent, the lung metastases were reduced to zero. Treatment with either Gemcytabine or cyclophosphamide alone (mean number of metastases 4.5 and 4, respectively) were not as effective as ANGIOZYMETM alone or when used in combination with ANGIOZYMETM. Neither of the attenuated controls increased the effect of the chemotherapeutic agents.

The effect on metastases to the lung was also determined following continuous treatment with ANGIOZYME™. At day 20, an average of ~8 macrometastases were noted in the treatment groups which had been instrumented with Alzet minipumps (either 14- or 28-day pumps). This is a decrease in metastases of ~50% from the untreated group. Since

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ANGIOZYMETM delivered by a daily subcutaneous bolus resulted in zero metastases (Fig.4) in the two animals counted, it is possible that the additional burden of being instrumented with the minipump contributes to a slightly decreased response to ANGIOZYMETM.

Example 5: Identification of Potential Target Sites in Human VEGFR1 and/or VEGFR2 RNA

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The sequence of human VEGFR1 and/or VEGFR2 genes are screened for accessible sites using a computer-folding algorithm. Regions of the RNA that do not form secondary folding structures and contain potential enzymatic nucleic acid molecule and/or antisense binding/cleavage sites are identified. An exemplary sequence of an enzymatic nucleic acid molecule of the invention is shown in Formula I and/or Formula II (SEQ ID Nos: 5977 and 5978, respectively). Other nucleic acid molecules and targets contemplated by the invention are described in Pavco et al., US Patent Application No. 09/870,161, incorporated by reference herein in its entirety. Similarly, other nucleic acid molecules of the invention, including antisense, aptamers, dsRNA, siRNA, and/or 2,5-A chimeras, can be designed to modulate the expression of the nucleic acid targets described in Pavco et al., US Patent Application No. 09/870,161.

Example 6: Selection of Enzymatic Nucleic Acid Cleavage Sites in Human VEGFR1 and/or VEGFR2 RNA

Enzymatic nucleic acid molecule target sites are chosen by analyzing sequences of human VEGFR1 receptor (for example Genbank Accession No. NM_002019), and VEGFR2 receptor (for example Genbank Accession No. NM_002253) genes and prioritizing the sites on the basis of folding. Enzymatic nucleic acid molecules are designed that can bind each target and are individually analyzed by computer folding (Christoffersen et al., 1994 J. Mol. Struc. Theochem, 311, 273; Jaeger et al., 1989, Proc. Natl. Acad. Sci. USA, 86, 7706) to assess whether the enzymatic nucleic acid molecule sequences fold into the appropriate secondary structure. Those enzymatic nucleic acid molecules with unfavorable intramolecular interactions between the binding arms and the catalytic core can be eliminated from consideration. As discussed herein, varying binding arm lengths can be chosen to optimize activity. Generally, at least 4 bases on each arm are able to bind to, or otherwise interact with, the target RNA.

30 Example 7: Chemical Synthesis and Purification of Ribozymes and Antisense for Efficient Cleavage and/or blocking of VEGFR1 and/or VEGFR2 RNA

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Enzymatic nucleic acid molecules and antisense constructs are designed to anneal to various sites in the RNA message. The binding arms of the enzymatic nucleic acid molecules are complementary to the target site sequences described above, while the antisense constructs are fully complementary to the target site sequences described above. RNAi molecules (dsRNA) likewise have one strand of RNA or a portion of RNA complementarity to the target site sequence or a portion of the target site sequence. For example, complementarity within the double-strand RNAi structure is formed from two separate individual RNA strands or from self-complementary areas of a topologically closed, individual RNA strand which can be optionally circular. The nucleic acid molecules were chemically synthesized. The method of synthesis used followed the procedure for normal RNA synthesis as described above and in Usman et al., (1987 J. Am. Chem. Soc., 109, 7845), Scaringe et al., (1990 Nucleic Acids Res., 18, 5433) and Wincott et al., supra, and made use of common nucleic acid protecting and coupling groups, such as dimethoxytrityl at the 5'-end, and phosphoramidites at the 3'-end. The average stepwise coupling yields were typically >98%.

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Nucleic acid molecules are also synthesized from DNA templates using bacteriophage T7 RNA polymerase (Milligan and Uhlenbeck, 1989, Methods Enzymol. 180, 51). Nucleic acid molecules of the invention are purified by gel electrophoresis using general methods or are purified by high pressure liquid chromatography (HPLC; See Wincott *et al.*, supra; the totality of which is hereby incorporated herein by reference) and are resuspended in water. Examples of sequences of chemically synthesized enzymatic nucleic acid molecules are shown in Formula I (SEQ ID NO: 5977), Formula II (SEQ ID NO: 5978) and in Pavco *et al.*, US Patent Application No. 09/870,161.

Example 8: Enzymatic Nucleic Acid Molecule Cleavage of VEGFR1 and/or VEGFR2 RNA Target in vitro

Enzymatic nucleic acid molecules targeted to the human VEGFR1 and/or VEGFR2 RNA are designed and synthesized as described above. These enzymatic nucleic acid molecules can be tested for cleavage activity *in vitro*, for example, using the following procedure. The target sequences and the nucleotide location within the VEGFR1 and/or VEGFR2 RNA are described in Pavco *et al.*, US Patent Application No. 09/870,161.

Cleavage Reactions: Full-length or partially full-length, internally-labeled target RNA for enzymatic nucleic acid molecule cleavage assay is prepared by in vitro transcription in the presence of [a-32p] CTP, passed over a G 50 Sephadex column by spin chromatography and used as substrate RNA without further purification. Alternately, substrates are 5'-32p-end

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labeled using T4 polynucleotide kinase enzyme. Assays are performed by pre-warming a 2X concentration of purified enzymatic nucleic acid molecule in enzymatic nucleic acid molecule cleavage buffer (50 mM Tris-HCl, pH 7.5 at 37°C, 10 mM MgCl₂) and the cleavage reaction was initiated by adding the 2X enzymatic nucleic acid molecule mix to an equal volume of substrate RNA (maximum of 1-5 nM) that was also pre-warmed in cleavage buffer. As an initial screen, assays are carried out for 1 hour at 37°C using a final concentration of either 40 nM or 1 mM enzymatic nucleic acid molecule, *i.e.*, enzymatic nucleic acid molecule excess. The reaction is quenched by the addition of an equal volume of 95% formamide, 20 mM EDTA, 0.05% bromophenol blue and 0.05% xylene cyanol after which the sample is heated to 95°C for 2 minutes, quick chilled and loaded onto a denaturing polyacrylamide gel. Substrate RNA and the specific RNA cleavage products generated by enzymatic nucleic acid molecule cleavage are visualized on an autoradiograph of the gel. The percentage of cleavage is determined by Phosphor Imager® quantitation of bands representing the intact substrate and the cleavage products.

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15 Example 9: Phase I/II Study of Repetitive Dosing of ANGIOZYME™ Targeting the VEGFR1 (FLT-1) Receptor of VEGF

A ribozyme therapeutic agent ANGIOZYME™ (SEQ ID NO: 5977), was assessed by daily subcutaneous administration in a phase I/II trial for 31 patients with refractory solid tumors. Demographic information relating to patients enrolled in the study are shown in Table III. The primary study endpoint was to determine the safety and maximum tolerated dose of ANGIOZYME™. Secondary endpoints assessed ANGIOZYME™ pharmacokinetics and clinical response. Patients were treated at the following doses: 3 patients received doses of 10 mg/m²/day, 4 patients received 30 mg/m²/day, 20 patients received 100 mg/m²/day, and 4 patients received 300 mg/m²/day. All but one patient were dosed for a minimum of 29 consecutive days with 24-hour pharmacokinetic analyses on Day 1 and 29. Clinical response was assessed monthly. Results The data from 20 patients ANGIOZYMETM was well tolerated, with no systemic adverse events. Figure 5 shows the plasma concentration profile of ANGIOZYME™ after a single subcutaneous dose of 10, 30, 100, or 300 mg/m². The pharmacokinetic parameters of ANGIOZYME™ after subcutaneous bolus administration are outlined in Table IV. An MTD (maximum tolerated dose) could not be established. One patient in the 300 mg/m²/d group experienced a grade 3 injection site reaction. Patients in the other groups experienced intermittent grade 1 and grade 2 injection site reactions with erythema and induration. No systemic or laboratory toxicities were observed. Pharmacokinetic analyses demonstrated dose-dependent plasma concentrations with good bioavailability (70-90%), t1/2 = 209-384 min, and no accumulation after repeated

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doses. To date, 17/28 (61%) of evaluable patients have had stable disease for periods of one to six months and two patients (nasopharyngeal squamous cell carcinoma and melanoma) had minor clinical responses. The patient with nasopharyngeal carcinoma demonstrated central tumor necrosis as indicated by MRI. The longest period of treatment thus far has been 8 months for two patients at 100 mg/m²/d (breast, peritoneal mesothelioma).

Example 10: Down-regulation of VEGFR1 gene expression to treat gynecologic neovascularization dependent conditions

One patient in the Phase VII trial described in Example 19 was menstruating prior to enrollment in the ANGIOZYME™ monotherapy trial. After 1-2 months on trial, the patient's menstrual cycles ceased. The patient remained on trial for approximately 11 months and did not menstruate. The patient then went off the trial for about 4 months and the menstrual Re-enrollment in the ANGIOZYMETM trial resulted in the patient's cycles resumed. menstrual cycle stopping again. This clinical observation suggests that ANGIOZYME™ is interfering with the patient's menstrual cycle, perhaps by inhibiting neovascularization of uterine tissue. This data also suggests that ANGIOZYMETM has a direct effect on the endometrial tissue or an effect on LH/FSH stimulation. These results suggest the treatment or control, using ANGIOZYME™ (SEQ ID NO: 5977) and/or other nucleic acid molecules of the instant invention, of various clinical targets and/or processes associated with female reproduction and gynecologic neovascularization, such as endometriosis, birth control, gynecologic bleeding disorders, irregular menstrual cycles, ovulation, premenstrual syndrome (PMS), menopausal dysfunction, endometrial carcinoma or other condition associated with the expression of VEGFR1 and/or VEGFR2 VEGF receptors.

Example 11: Down-regulation of VEGFR1 in clinical setting

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Twenty-seven of the patients enrolled in the Phase I/II trial described in Example 19 had day 1 (baseline) and day 43 (six-week) serum samples assayed for VEGFR1 biomarker. VEGFR1 levels were statistically different after six weeks of ANGIOZYME treatment (Figure 9). Although statistical testing involving all 27 patients showed statistical support for effects, not all patients presented with elevated levels of VEGF-R1. Since the effects of ANGIOZYME on VEGF-R1 may only be demonstrated when sufficient levels are present at baseline, a cutoff of 100 pg/mL was chosen and changes in this VEGF-R1 were re-analyzed. Ten of the 27 patients presented with baseline VEGF-R1 levels in excess of 100 pg/mL. For this subgroup VEGF-R1 levels were lower by 3-fold, p<.001. After six weeks of treatment the average (geometric mean) of VEGF-R1 decreased for this subgroup from 419 pg/ml to

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132pg/ml, p<.001. These results show that treatment with ANGIOZYME results in a statistically significant reduction in VEGFR1 expression.

Example 22: In vivo inhibition of neovascularization in an ocular animal model by VEGF-R ribozymes.

5 Summary of the Mouse Model: A mouse model of proliferative retinopathy (Aiello et al., 1995, Proc. Natl. Acad. Sci. USA 92: 10457-10461; Robinson et al., 1996, Proc. Natl. Acad. Sci. USA 93: 4851-4856; Pierce et al., 1996, Archives of Ophthalmology 114: 1219-1228) in which neovascularization of the mouse retina is induced by exposure of 7-day old mice to 75% oxygen followed by a return to normal room air. The initial period in high 10 oxygen causes an obliteration of developing blood vessels in the retina. Exposure to room air five days later is perceived as hypoxia by the now underperfused retina. The result is an immediate upregulation of VEGF mRNA and VEGF protein (between 6-12 hours) followed by an extensive retinal neovascularization that peaks in ~5 days. Although this model is more representative of retinopathy of prematurity than diabetic retinopathy, it is an accepted small animal model in which to study neovascular pathophysiology of the retina. In fact, 15 intravitreal injection of certain antisense DNA constructs targeting VEGF mRNA have been found to be antiangiogenic in this model, as were soluble VEGF receptor chimeric proteins designed to bind VEGF in the vitreous humor (Aiello et al., 1995, Proc. Natl. Acad. Sci. USA 92: 10457-10461; Robinson et al., 1996, Proc. Natl. Acad. Sci. USA 93: 4851-4856; Pierce 20 et al., 1996, Archives of Ophthalmology 114: 1219-1228).

Summary of experiment: The effect of an anti-KDR/Flk-1 ribozyme on the peak level of neovascularization was tested in the mouse model described above. As shown in Figure 10, P7 mice were removed from the hyperoxic chamber and the mice received two intraocular injections (P12 and P13) in the right eye of 10 µg RPI.4731, the anti- KDR/Flk-1 ribozyme. The left eye of each mouse was treated as a control and received intraocular injections of saline. Five days after being exposed to room air, neovascular nuclei in the retina of both eyes were counted. Data are presented in Figure 11. There was a significant decrease in retinal neovascularization (~40%) compared to the control, saline-injected eyes.

RPI.4731 sequence and chemical composition: 5'-u_sa_sc_s a_sau ucU GAu Gag gcg aaa gcc Gaa Aag aca aB-3' (SEQ ID NO: 5978)

where:

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uppercase G, A = ribonucleotides lowercase = 2'-OMe U = 2'-C-allyl uridine

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B = inverted abasic nucleotide S = phosphorothioate internucleotide linkage

Indications

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- 5 1) Tumor angiogenesis: Angiogenesis has been shown to be necessary for tumors to grow into pathological size (Folkman, 1971, PNAS 76, 5217-5221; Wellstein & Czubavko. 1996, Breast Cancer Res and Treatment 38, 109-119). In addition, it allows tumor cells to travel through the circulatory system during metastasis. Increased levels of gene expression of a number of angiogenic factors such as vascular endothelial growth factor (VEGF) have 10 been reported in vascularized and edema-associated brain tumors (Berkman et al., 1993 J. Clini. Invest. 91, 153). A more direct demostration of the role of VEGF in tumor angiogenesis was demonstrated by Jim Kim et al., 1993 Nature 362,841 wherein, monoclonal antibodies against VEGF were successfully used to inhibit the growth of rhabdomyosarcoma. glioblastoma multiforme cells in nude mice. Similarly, expression of a dominant negative 15 mutated form of the flt-1 VEGF receptor inhibits vascularization induced by human glioblastoma cells in nude mice (Millauer et al., 1994, Nature 367, 576). Specific tumor/cancer types that can be targeted using the nucleic acid molecules of the invention include but are not limited to the tumor/cancer types described under Diagnosis in Table III.
- 2) Ocular diseases: Neovascularization has been shown to cause or exacerbate ocular diseases including but not limited to, macular degeneration, neovascular glaucoma, diabetic retinopathy, myopic degeneration, and trachoma (Norrby, 1997, APMIS 105, 417-437). Aiello et al., 1994 New Engl. J. Med. 331, 1480, showed that the ocular fluid, of a majority of patients suffering from diabetic retinopathy and other retinal disorders, contains a high concentration of VEGF. Miller et al., 1994 Am. J. Pathol. 145, 574, reported elevated levels of VEGF mRNA in patients suffering from retinal ischemia. These observations support a direct role for VEGF in ocular diseases. Other factors including those that stimulate VEGF synthesis may also contribute to these indications.
 - 3) <u>Dermatological Disorders:</u> Many indications have been identified which may by angiogenesis dependent including but not limited to psoriasis, verruca vulgaris, angiofibroma of tuberous sclerosis, pot-wine stains, Sturge Weber syndrome, Kippel-Trenaunay-Weber syndrome, and Osler-Weber-Rendu syndrome (Norrby, *supra*). Intradermal injection of the angiogenic factor b-FGF demonstrated angiogenesis in nude mice (Weckbecker et al., 1992, *Angiogenesis: Key principles-Science-Technology-Medicine*, ed R. Steiner) Detmar *et al.*, 1994 *J. Exp. Med.* 180, 1141 reported that VEGF and its receptors were over-expressed in

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psoriatic skin and psoriatic dermal microvessels, suggesting that VEGF plays a significant role in psoriasis.

4) Rheumatoid arthritis: Immunohistochemistry and in situ hybridization studies on tissues from the joints of patients suffering from rheumatoid arthritis show an increased level of VEGF and its receptors (Fava et al., 1994 J. Exp. Med. 180, 341). Additionally, Koch et al., 1994 J. Immunol. 152, 4149, found that VEGF-specific antibodies were able to significantly reduce the mitogenic activity of synovial tissues from patients suffering from rheumatoid arthritis. These observations support a direct role for VEGF in rheumatoid arthritis. Other angiogenic factors including those of the present invention may also be involved in arthritis.

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5) Endometriosis: Various studies indicate that VEGF is directly implicated in endometriosis. In one study, VEGF concentrations measured by ELISA in peritoneal fluid were found to be significantly higher in women with endometriosis than in women without endometriosis (24.1 ± 15 ng/ml vs 13.3 ± 7.2 ng/ml in normals). In patients with endometriosis, higher concentrations of VEGF were detected in the proliferative phase of the menstrual cycle (33 ± 13 ng/ml) compared to the secretory phase (10.7 ± 5 ng/ml). The cyclic variation was not noted in fluid from normal patients (McLaren et al., 1996, Human Reprod. 11, 220-223). In another study, women with moderate to severe endometriosis had significantly higher concentrations of peritoneal fluid VEGF than women without endometriosis. There was a positive correlation between the severity of endometriosis and the concentration of VEGF in peritoneal fluid. In human endometrial biopsies, VEGF expression increased relative to the early proliferative phase approximately 1.6-, 2-, and 3.6-fold in midproliferative, late proliferative, and secretory endometrium (Shifren et al., 1996, J. Clin. Endocrinol. Metab. 81, 3112-3118).

In a third study, VEGF-positive staining of human ectopic endometrium was shown to be localized to macrophages (double immunofluorescent staining with CD14 marker). Peritoneal fluid macrophages demonstrated VEGF staining in women with and without endometriosis. However, increased activation of macrophages (acid phosphatatse activity) was demonstrated in fluid from women with endometriosis compared with controls. Peritoneal fluid macrophage conditioned media from patients with endometriosis resulted in significantly increased cell proliferation ([³H] thymidine incorporation) in HUVEC cells compared to controls. The percentage of peritoneal fluid macrophages with VEGFR2 mRNA was higher during the secretory phase, and significantly higher in fluid from women with endometriosis (80 ± 15%) compared with controls (32 ± 20%). Flt-mRNA was detected in

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peritoneal fluid macrophages from women with and without endometriosis, but there was no difference between the groups or any evidence of cyclic dependence (McLaren et al., 1996, J. Clin. Invest. 98, 482-489).

In the early proliferative phase of the menstrual cycle, VEGF has been found to be expressed in secretory columnar epithelium (estrogen-responsive) lining both the oviducts and the uterus in female mice. During the secretory phase, VEGF expression was shown to have shifted to the underlying stroma composing the functional endometrium. In addition to examining the endometrium, neovascularization of ovarian follicles and the corpus luteum, as well as angiogenesis in embryonic implantation sites have been analyzed. For these processes, VEGF was expressed in spatial and temporal proximity to forming vasculature (Shweiki et al., 1993, J. Clin. Invest. 91, 2235-2243).

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The present body of knowledge in VEGFR1 and/or VEGFR2 research indicates the need for methods to assay VEGFR1 and/or VEGFR2 activity and for compounds that can regulate VEGFR1 and/or VEGFR2 expression for research, diagnostic, and therapeutic use. As described herein, the nucleic acid molecules of the present invention can be used in assays to diagnose disease state related of VEGF, VEGFR1 and/or VEGFR2 levels. In addition, the nucleic acid molecules can be used to treat disease state related to VEGF and/or VEGFR, such as VEGFR1 and/or VEGFR2 levels.

Particular processes, diseases, or conditions that can be associated with VEGFR1 and/or VEGFR2 levels include, but are not limited to, gynecologic neovascularization, such as endometriosis, endometrial carcinoma, gynecologic bleeding disorders, irregular menstrual cycles, ovulation, premenstrual syndrome (PMS), menopausal dysfunction, other diseases and conditions discussed herein, and other diseases or conditions that are related to or respond to the levels of VEGF and/or VEGFr, such as VEGFR1 and/or VEGFR2, in a cell or tissue, alone or in combination with other therapies

The use of GnRH (gonadotropin releasing hormone) agonists, Lupron Depot (Leuprolide Acetate), Synarel (naferalin acetate), Zolodex (goserelin acetate), Suprefact (buserelin acetate), Danazol, or oral contraceptives including, but not limited to, Depo-Provera or Provera (medroxyprogesterone acetate), or any other estrogen/progesterone contraceptive, are all non-limiting examples of compounds and methods that can be combined with or used in conjunction with the nucleic acid molecules of the instant invention. Various chemotherapies can be readily combined with nucleic acid molecules of the invention for the treatment of endometrial carcinoma. Common chemotherapies that can be combined with nucleic acid molecules of the instant invention include various combinations of cytotoxic drugs to kill the

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cancer cells. These drugs include but are not limited to paclitaxel (Taxol), docetaxel, cisplatin, methotrexate, cyclophosphamide, doxorubin, fluorouracil carboplatin, edatrexate, gemcitabine, vinorelbine etc. Those skilled in the art will recognize that other drug compounds and therapies can be readily combined with the nucleic acid molecules of the instant invention and are hence within the scope of the instant invention.

Animal Models

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There are several animal models in which the anti-angiogenesis effect of nucleic acids of the present invention, such as ribozymes, directed against VEGF-R mRNAs can be tested. Typically, a corneal model has been used to study angiogenesis in rat and rabbit since recruitment of vessels can easily be followed in this normally avascular tissue (Pandey et al., 1995 Science 268: 567-569). In these models, a small Teflon or Hydron disk pretreated with an angiogenesis factor (e.g. bFGF or VEGF) is inserted into a pocket surgically created in the cornea. Angiogenesis is monitored 3 to 5 days later. Ribozymes directed against VEGF-R mRNAs would be delivered in the disk as well, or dropwise to the eye over the time course of the experiment. In another eye model, hypoxia has been shown to cause both increased expression of VEGF and neovascularization in the retina (Pierce et al., 1995 Proc. Natl. Acad. Sci. USA. 92: 905-909; Shweiki et al., 1992 J. Clin. Invest. 91: 2235-2243).

In human glioblastomas, it has been shown that VEGF is at least partially responsible for tumor angiogenesis (Plate et al., 1992 Nature 359, 845). Animal models have been developed in which glioblastoma cells are implanted subcutaneously into nude mice and the progress of tumor growth and angiogenesism is studied (Kim et al., 1993 supra; Millauer et al., 1994 supra).

Another animal model that addresses neovascularization involves Matrigel, an extract of basement membrane that becomes a solid gel when injected subcutaneously (Passaniti et al., 1992 Lab. Invest. 67: 519-528). When the Matrigel is supplemented with angiogenesis factors such as VEGF, vessels grow into the Matrigel over a period of 3 to 5 days and angiogenesis can be assessed. Ribozymes directed against VEGF-R mRNAs can be delivered in the Matrigel to assess anti-angiogesis effect.

Several animal models exist for screening of anti-angiogenic agents. These include corneal vessel formation following corneal injury (Burger et al., 1985 Cornea 4: 35-41; Lepri, et al., 1994 J. Ocular Pharmacol. 10: 273-280; Ormerod et al., 1990 Am. J. Pathol. 137: 1243-1252) or intracorneal growth factor implant (Grant et al., 1993 Diabetologia 36: 282-291; Pandey et al. 1995 supra; Zieche et al., 1992 Lab. Invest. 67: 711-715), vessel

growth into Matrigel matrix containing growth factors (Passaniti et al., 1992 supra), female reproductive organ neovascularization following hormonal manipulation (Shweiki et al., 1993 Clin. Invest. 91: 2235-2243), several models involving inhibition of tumor growth in highly vascularized solid tumors (O'Reilly et al., 1994 Cell 79: 315-328; Senger et al., 1993 Cancer and Metas. Rev. 12: 303-324; Takahasi et al., 1994 Cancer Res. 54: 4233-4237; Kim et al., 1993 supra), and transient hypoxia-induced neovascularization in the mouse retina (Pierce et al., 1995 Proc. Natl. Acad. Sci. USA. 92: 905-909).

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The cornea model, described in Pandey et al. supra, is the most common and well characterized anti-angiogenic agent efficacy screening model. This model involves an avascular tissue into which vessels are recruited by a stimulating agent (growth factor, thermal or alkalai burn, endotoxin). The corneal model utilizes the intrastromal corneal implantation of a Teflon pellet soaked in a VEGF-Hydron solution to recruit blood vessels toward the pellet which can be quantitated using standard microscopic and image analysis techniques. To evaluate their anti-angiogenic efficacy, ribozymes are applied topically to the eye or bound within Hydron on the Teflon pellet itself. This avascular cornea as well as the Matrigel (see below) provide for low background assays. While the corneal model has been performed extensively in the rabbit, studies in the rat have also been conducted.

The mouse model (Passaniti et al., supra) is a non-tissue model which utilizes Matrigel, an extract of basement membrane (Kleinman et al., 1986) or Millipore[®] filter disk, which can be impregnated with growth factors and anti-angiogenic agents in a liquid form prior to injection. Upon subcutaneous administration at body temperature, the Matrigel or Millipore[®] filter disk forms a solid implant. VEGF embedded in the Matrigel or Millipore[®] filter disk would be used to recruit vessels within the matrix of the Matrigel or Millipore[®] filter disk which can be processed histologically for endothelial cell specific vWF (factor VIII antigen) immunohistochemistry, Trichrome-Masson stain, or hemoglobin content. Like the cornea, the Matrigel or Millipore[®] filter disk are avascular; however, it is not tissue. In the Matrigel or Millipore[®] filter disk model, ribozymes are administered within the matrix of the Matrigel or Millipore[®] filter disk to test their anti-angiogenic efficacy. Thus, delivery issues in this model, as with delivery of ribozymes by Hydron-coated Teflon pellets in the rat cornea model, are minimized due to the homogeneous presence of the ribozyme within the respective matrix.

These models offer a distinct advantage over several other angiogenic models listed previously. The ability to use VEGF as a pro-angiogenic stimulus in both models is highly desirable since ribozymes target only VEGFr mRNA. In other words, the involvement of

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other non-specific types of stimuli in the comea and Matrigel models is not advantageous from the standpoint of understanding the pharmacologic mechanism by which the anti-VEGFr mRNA ribozymes produce their effects. In addition, the models allow for testing the specificity of the anti-VEGFr mRNA ribozymes by using either aFGF or bFGF as a pro-angiogenic factor. Vessel recruitment using FGF should not be affected in either model by anti-VEGFr mRNA ribozymes. Other models of angiogenesis, including vessel formation in the female reproductive system using hormonal manipulation (Shweiki et al., 1993 supra); a variety of vascular solid tumor models which involve indirect correlations with angiogenesis (O'Reilly et al., 1994 supra; Senger et al., 1993 supra; Takahasi et al., 1994 supra; Kim et al., 1993 supra); and retinal neovascularization following transient hypoxia (Pierce et al., 1995 supra), were not selected for efficacy screening due to their non-specific nature, although they can be useful models due to a demonstrated correlation between VEGF and angiogenesis.

Other model systems to study tumor angiogenesis is reviewed by Folkman, 1985 Adv.

15 Cancer. Res., 43, 175.

Use of murine models

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For a typical systemic study involving 10 mice (20 g each) per dose group, 5 doses (1, 3, 10, 30 and 100 mg/kg daily over 14 days continuous administration), approximately 400 mg of ribozyme, formulated in saline would be used. A similar study in young adult rats (200 g) would require over 4 g. Parallel pharmacokinetic studies involve the use of similar quantities of ribozymes further justifying the use of murine models.

Ribozymes and Lewis lung carcinoma and B-16 melanoma murine models

Identifying a common animal model for systemic efficacy testing of ribozymes is an efficient way of screening ribozymes for systemic efficacy.

The Lewis lung carcinoma and B-16 murine melanoma models are well accepted models of primary and metastatic cancer and are used for initial screening of anti-cancer agents. These murine models are not dependent upon the use of immunodeficient mice, are relatively inexpensive, and minimize housing concerns. Both the Lewis lung and B-16 melanoma models involve subcutaneous implantation of approximately 106 tumor cells from metastatically aggressive tumor cell lines (Lewis lung lines 3LL or D122, LLc-LN7; B-16-BL6 melanoma) in C57BL/6J mice. Alternatively, the Lewis lung model can be produced by the surgical implantation of tumor spheres (approximately 0.8 mm in diameter). Metastasis

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also can be modeled by injecting the tumor cells directly intraveneously. In the Lewis lung model, microscopic metastases can be observed approximately 14 days following implantation with quantifiable macroscopic metastatic tumors developing within 21-25 days. The B-16 melanoma exhibits a similar time course with tumor neovascularization beginning 4 days following implantation. Since both primary and metastatic tumors exist in these models after 21-25 days in the same animal, multiple measurements can be taken as indices of efficacy. Primary tumor volume and growth latency as well as the number of micro- and macroscopic metastatic lung foci or number of animals exhibiting metastases can be quantitated. The percent increase in lifespan can also be measured. Thus, these models provide suitable primary efficacy assays for screening systemically administered ribozymes/ribozyme formulations.

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In the Lewis lung and B-16 melanoma models, systemic pharmacotherapy with a wide variety of agents usually begins 1-7 days following tumor implantation/inoculation with either continuous or multiple administration regimens. Concurrent pharmacokinetic studies can be performed to determine whether sufficient tissue levels of ribozymes can be achieved for pharmacodynamic effect to be expected. Furthermore, primary tumors and secondary lung metastases can be removed and subjected to a variety of *in vitro* studies (*i.e.* target RNA reduction).

Flt-1, KDR and/or flk-1 protein levels can be measured clinically or experimentally by FACS analysis. Flt-1, KDR and/or flk-1 encoded mRNA levels can be assessed by Northern analysis, RNase-protection, primer extension analysis and/or quantitative RT-PCR. Ribozymes that block flt-1, KDR and/or flk-1 protein encoding mRNAs and therefore result in decreased levels of flt-1, KDR and/or flk-1 activity by more than 20% in vitro can be identified.

Ribozymes and/or genes encoding them are delivered by either free delivery, liposome delivery, cationic lipid delivery, adeno-associated virus vector delivery, adenovirus vector delivery, retrovirus vector delivery or plasmid vector delivery in these animal model experiments (see above).

Subjects can be treated by locally administering nucleic acids targeted against VEGF-R by direct injection. Routes of administration include, but are not limited to, intravascular, intramuscular, subcutaneous, intraarticular, aerosol inhalation, oral (tablet, capsule or pill form), topical, systemic, ocular, intraperitoneal and/or intrathecal delivery.

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Surgically induced models of endometriosis have been developed in rats, mice, and rabbits. Non-human primates demonstrate spontaneous endometriosis, but surgical induction can also be used. In addition to the surgical technique, cycle monitoring can be performed by daily vaginal cytology in primates. For all of the surgically induced models of endometriosis, the following general procedure is used. An initial laparotomy is performed to implant tissue from a donor animal. A portion of one uterine horn (or one complete horn in the case of mice) is removed. The endometrium of this piece of uterus is separated from the myometrium and cut into small segments (4-10 mm2). Segments (approximately 3) are sutured to various locations within the abdominal cavity (peritoneum, intestinal mesentery vessels, uterus, broad 10 ligament). Cummings and Metcalf (1996) attached whole segments of mouse uterus without separating the endometrium from the myometrium. Implants are allowed to grow for 3-6 A second laparotomy is sometimes performed to verify development of endometriosis-like foci (vascularization and cysts filled with clear fluid). This second laparotomy was done in the studies by Ouereda et al., (1996) and Stoeckemann et al., (1995). 15 After 3-6 weeks post-surgery and/or following visualization of endometriosis, drug treatment is initiated and continued for a prescribed period of time. At the termination of these studies, animals are euthanized. Endpoints include, but are not limited to, changes in the surface area of the implants and tissue mass of the ectopic endometrial implants (see for example Brogniez et al., 1995, Human Reprod. 10, 927-931; Cummings et al., 1996, Tox. Appl. 20 Pharm. 138, 131-139; Cummings and Metcalf, 1996, Proc. Soc. Exp. Biol. Med. 212, 332-337; D'Hooghe et al., 1996, Fertility and Sterility. 66, 809-813; Quereda et al., 1996, Eur. J. Obstet. Gynecol. Rep. Biol. 67, 35-40; and Stockemann et al., 1995, Human Reprod. 10, 3264-3271).

Combination therapies

Gemcytabine and cyclophosphamide are non-limiting examples of chemotherapeutic agents that can be combined with or used in conjunction with the nucleic acid molecules (e.g. ribozymes and antisense molecules) of the instant invention. Those skilled in the art will recognize that other anti-angiogenic and/or anti-cancer compounds and therapies can be similarly be readily combined with the nucleic acid molecules of the instant invention (e.g. 130 ribozymes and antisense molecules) and are hence within the scope of the instant invention. Such compounds and therapies are well known in the art (see for example Cancer: Principles

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and Pranctice of Oncology, Volumes 1 and 2, eds Devita, V.T., Hellman, S., and Rosenberg, S.A., J.B. Lippincott Company, Philadelphia, USA; incorporated herein by reference) and include, without limitations, folates, antifolates, pyrimidine analogs, fluoropyrimidines, purine analogs, adenosine analogs, topoisomerase I inhibitors, anthrapyrazoles, retinoids, antibiotics, anthacyclins, platinum analogs, alkylating agents, nitrosoureas, plant derived compounds such as vinca alkaloids, epipodophyllotoxins, tyrosine kinase inhibitors, taxols, radiation therapy, surgery, nutritional supplements, gene therapy, radiotherapy, for example 3D-CRT, immunotoxin therapy, for example ricin, and monoclonal antibodies. Specific examples of chemotherapeutic compounds than can be combined with or used in conjuction with the nucleic acid molecules of the invention include but are not limited to Paclitaxel; Docetaxel; Methotrexate; Doxorubin; Edatrexate; Vinorelbine; Tomaxifen; Leucovorin; 5fluoro uridine (5-FU); Irinotecan (CAMPTOSAR® or CPT-11 or Camptothecin-11 or Campto); Cisplatin; Carboplatin; Amsacrine; Cytarabine; Bleomycin; Mitomycin C; Dactinomycin; Mithramycin; Hexamethylmelamine; Dacarbazine; L-asperginase; Nitrogen mustard; Melphalan, Chlorambucil; Busulfan; Ifosfamide; 4-hydroperoxycyclophosphamide, Thiotepa; Tamoxifen, Herceptin; IMC C225; ABX-EGF: and combinations thereof.

Diagnostic uses

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The nucleic acid molecules of this invention (e.g., enzymatic nucleic acid molecules) can be used as diagnostic tools to examine genetic drift and mutations within diseased cells or to detect the presence of VEGF and/or VEGFr, such as VEGFR1 and/or VEGFR2 RNA in a The close relationship between enzymatic nucleic acid molecule activity and the structure of the target RNA allows the detection of mutations in any region of the molecule which alters the base-pairing and three-dimensional structure of the target RNA. By using multiple enzymatic nucleic acid molecules described in this invention, one can map nucleotide changes which are important to RNA structure and function in vitro, as well as in cells and tissues. Cleavage of target RNAs with enzymatic nucleic acid molecules can be used to inhibit gene expression and define the role (essentially) of specified gene products in the progression of disease. In this manner, other genetic targets can be defined as important mediators of the disease. These experiments can lead to better treatment of the disease progression by affording the possibility of combinational therapies (e.g., multiple enzymatic nucleic acid molecules targeted to different genes, enzymatic nucleic acid molecules coupled with known small molecule inhibitors, or intermittent treatment with combinations of enzymatic nucleic acid molecules and/or other chemical or biological molecules). Other in

vitro uses of enzymatic nucleic acid molecules of this invention are well known in the art, and include detection of the presence of mRNAs associated with VEGF, VEGFR1 and/or VEGFR2-related condition. Such RNA is detected by determining the presence of a cleavage product after treatment with an enzymatic nucleic acid molecule using standard methodology.

In a specific example, enzymatic nucleic acid molecules which cleave only wild-type or mutant forms of the target RNA are used for the assay. The first enzymatic nucleic acid molecule is used to identify wild-type RNA present in the sample and the second enzymatic nucleic acid molecule is used to identify mutant RNA in the sample. As reaction controls, synthetic substrates of both wild-type and mutant RNA are cleaved by both enzymatic nucleic acid molecules to demonstrate the relative enzymatic nucleic acid molecule efficiencies in the reactions and the absence of cleavage of the "non-targeted" RNA species. The cleavage products from the synthetic substrates also serve to generate size markers for the analysis of wild-type and mutant RNAs in the sample population. Thus each analysis requires two enzymatic nucleic acid molecules, two substrates and one unknown sample which is combined into six reactions. The presence of cleavage products is determined using an RNAse protection assay so that full-length and cleavage fragments of each RNA can be analyzed in one lane of a polyacrylamide gel. It is not absolutely required to quantify the results to gain insight into the expression of mutant RNAs and putative risk of the desired phenotypic changes in target cells. The expression of mRNA whose protein product is implicated in the development of the phenotype (i.e., VEGFR1 and/or VEGFR2) is adequate to establish risk. If probes of comparable specific activity are used for both transcripts, then a qualitative comparison of RNA levels will be adequate and will decrease the cost of the initial diagnosis. Higher mutant form to wild-type ratios are correlated with higher risk whether RNA levels are compared qualitatively or quantitatively. The use of enzymatic nucleic acid molecules in diagnostic applications contemplated by the instant invention is described, for example, in Usman et al., US Patent Application No. 09/877,526, George et al., US Patent Nos. 5,834,186 and 5,741,679, Shih et al., US Patent No. 5,589,332, Nathan et al., US Patent No 5,871,914, Nathan and Ellington, International PCT publication No. WO 00/24931, Breaker et al., International PCT Publication Nos. WO 00/26226 and 98/27104, and Sullenger et al., US Patent Application Serial No. 09/205,520.

Additional Uses

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Uses of sequence-specific enzymatic nucleic acid molecules of the instant invention can have many of the same applications for the study of RNA that DNA restriction endonucleases have for the study of DNA (Nathans et al., 1975 Ann. Rev. Biochem. 44:273). For example,

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the pattern of restriction fragments can be used to establish sequence relationships between two related RNAs, and large RNAs can be specifically cleaved to fragments of a size more useful for study. The ability to engineer sequence specificity of the enzymatic nucleic acid molecule is ideal for cleavage of RNAs of unknown sequence. Applicant has described the use of nucleic acid molecules to down-regulate gene expression of target genes in bacterial, microbial, fungal, viral, and eukaryotic systems including plant, or mammalian cells.

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All patents and publications mentioned in the specification are indicative of the levels of skill of those skilled in the art to which the invention pertains. All references cited in this disclosure are incorporated by reference to the same extent as if each reference had been incorporated by reference in its entirety individually.

One skilled in the art would readily appreciate that the present invention is well adapted to carry out the objects and obtain the ends and advantages mentioned, as well as those inherent therein. The methods and compositions described herein as presently representative of preferred embodiments are exemplary and are not intended as limitations on the scope of the invention. Changes therein and other uses will occur to those skilled in the art, which are encompassed within the spirit of the invention, are defined by the scope of the claims.

It will be readily apparent to one skilled in the art that varying substitutions and modifications may be made to the invention disclosed herein without departing from the scope and spirit of the invention. Thus, such additional embodiments are within the scope of the present invention and the following claims.

The invention illustratively described herein suitably may be practiced in the absence of any element or elements, limitation or limitations which is not specifically disclosed herein. Thus, for example, in each instance herein any of the terms "comprising", "consisting essentially of" and "consisting of" may be replaced with either of the other two terms. The terms and expressions which have been employed are used as terms of description and not of limitation, and there is no intention that in the use of such terms and expressions of excluding any equivalents of the features shown and described or portions thereof, but it is recognized that various modifications are possible within the scope of the invention claimed. Thus, it should be understood that although the present invention has been specifically disclosed by preferred embodiments, optional features, modification and variation of the concepts herein disclosed may be resorted to by those skilled in the art, and that such modifications and variations are considered to be within the scope of this invention as defined by the description and the appended claims.

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In addition, where features or aspects of the invention are described in terms of Markush groups or other grouping of alternatives, those skilled in the art will recognize that the invention is also thereby described in terms of any individual member or subgroup of members of the Markush group or other group.

5 Other embodiments are within the following claims.

TABLE I

Characteristics of Ribozymes

Group I Introns

Size: ~200 to >1000 nucleotides.

Requires a U in the target sequence immediately 5' of the cleavage site

Binds 4-6 nucleotides at 5' side of cleavage site.

Over 75 known members of this class. Found in *Tetrahymena thermophila* rRNA, fungal mitochondria, chloroplasts, phage T4, blue-green algae, and others.

RNAseP RNA (M1 RNA)

Size: ~290 to 400 nucleotides.

RNA portion of a ribonucleoprotein enzyme. Cleaves tRNA precursors to form mature tRNA.

Roughly 10 known members of this group all are bacterial in origin.

Hammerhead Ribozyme

Size: ~13 to 40 nucleotides.

Requires the target sequence UH immediately 5' of the cleavage site.

Binds a variable number of nucleotides on both sides of the cleavage site.

14 known members of this class. Found in a number of plant pathogens (virusoids) that use RNA as the infectious agent (Figure 1 and 2)

Hairpin Ribozyme

Size: ~50 nucleotides.

Requires the target sequence GUC immediately 3' of the cleavage site.

Binds 4-6 nucleotides at 5' side of the cleavage site and a variable number to the 3' side of the cleavage site.

Only 3 known member of this class. Found in three plant pathogen (satellite RNAs of the tobacco ringspot virus, arabis mosaic virus and chicory yellow mottle virus) which uses RNA as the infectious agent (Figure 3).

Hepatitis Delta Virus (HDV) Ribozyme

Size: 50 - 60 nucleotides (at present).

Sequence requirements not fully determined.

Binding sites and structural requirements not fully determined, although no sequences 5' of cleavage site are required.

Only 1 known member of this class. Found in human HDV (Figure 4).

Neurospora VS RNA Ribozyme

Size: ~144 nucleotides (at present)

Cleavage of target RNAs recently demonstrated.
Sequence requirements not fully determined.
Binding sites and structural requirements not fully determined. Only 1 known member of this class. Found in *Neurospora* VS RNA (Figure 5).

PCT/US02/17674

A. 2.5 µmol Synthesis Cycle ABI 394 Instrument

Reagent	Equivalents	Amount	Walt Time* DNA Walt Time* 2:- O-methyi	Wait Time* 2′- O-methyi	Wait Time* RNA
Phosphoramidites	8.5	163 µL	45 sec	2.5 min	7.5 min
S-Ethyi Tetrazole	23.8	238 µL	45 sec	2.5 min	7.5 min
Acetic Anhydride	100	233 µL	5 sec	5 sec	5 880
N-Methyl Imidazole	186	233 µL	5 sec	5 sec	5 880
TCA	176	2.3 mL	21 sec	21 sec	21 sec
lodine	11.2	1.7 mL	45 sec	45 sec	45 sec
Beaucage	12.9	645 µL	100 sec	300 sec	300 sec
Acetonitrile	AN AN	6.67 mL	ĄN	Ą.	Y Y

B. 0.2 µmol Synthesis Cycle ABI 394 Instrument

Reagent	Equivalents	Amount	Walt Time* DNA Wait Time* 2'- O-methyl	Wait Time* 2'- O-methyl	Wait Time* RNA
Phosphoramidites	15	31 µL	45 sec	233 ѕөс	465 sec
S-Ethyl Tetrazole	38.7	31 pL	45 sec	233 min	465 sec
Acetic Anhydride	655	124 µL	5 sec	5 sec	5 sec
N-Methyl Imidazole	1245	124 pL	5 sec	5 sec	5 sec
TCA	700	732 µL	10 sec	10 sec	10 sec
lodine	20.6	244 pL	15 sec	15 sec	15 sec

peancage	7.7	232 µL 1	100 sec 3	300 sec 300 sec	iec
Acetonitrile	N	2.64 mL N	NA AN	NA	
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	3	c. o.z jinol synthesis cycle so well instrument	o well instrument		
Reagent	Equivalents DNA/2'-O-methyl/Ribo	Amount DNA/2'-O-methyl/Ribo	Wait Time* DNA	Wait Time⁺ 2′-O- methyl	Wait Time* Ribo
Phosphoramidites	22/33/66	40/60/120 µL	60 sec	180 sec	360sec
S-Ethyl Tetrazole	70/105/210	40/60/120 µL	60 sec	180 min	.360 sec
Acetic Anhydride	265/265/265	50/50/50 pL	10 sec	10 sec	10 sec
N-Methyl Imidazole	502/502/502	50/50/50 µL	10 sec	10 sec	10 sec
TCA	238/475/475	250/500/500 µL	15 sec	15 sec	15 sec
lodine	6.8/6.8/6.8	80/80/80 µL	30 sec	30 sec	30 sec
Beaucage	34/51/51	80/120/120	100 sec	200 sec	200 sec
Acetonitrile	NA	1150/1150/1150 µL	AN	NA	NA

* Walt time does not include contact time during delivery.

Table III: Patient Demographics

Dose cohort				1	TI:
(mg/m²)	Pt#	Age	Sex :	Diagnosis	Doses
10	1001	49	F	NSC Lung	29
10	1002	65	F	liposarcoma	120
10	1003	49	M	nasopharyngeal CA	109
30	1004	35	M	non-small cell lung	1
30	1005	45	F	melanoma (ocular)	113
30	1006	57	M	colon	199
30	1007	39	F	epitheliod hemangioendothelioma	198
100	1008	52	M	adrenal CA	57
100	1009	44	F	breast	35
100	1010	62	F	renal	134
300	1011	24	F	melanoma	31
300	1012	57	M	renal cell	178
300	1013	53	M	nasopharyngeal SCCA	29
300	1014	64	F	peritoneal mesothelioma	324
100	1015	65	M	melanoma	140
100	1016	77	F	breast	265
100	1017		F	melanoma	35
100	1018	26	F	melanoma	7
100	1019	69	F	endometrial sarcoma	500
100	1020	65	M	carcinoid	124
100	1001				
	1021	59	M	galibladder adeno carcinoma	34
100	1021	43	M M	gallbladder adeno carcinoma colorectal	34 8
100 100	1022 1023	43 78	M F		
100 100 100	1022 1023 1024	43 78 40	M F F	colorectal	8
100 100 100 100	1022 1023 1024 1025	43 78 40 52	M F F	colorectal breast	8 50
100 100 100 100 100	1022 1023 1024 1025 1026	43 78 40 52 39	M F F F	colorectal breast parotid adenocarcinoma	8 50 285
100 100 100 100 100 100	1022 1023 1024 1025 1026 1027	43 78 40 52 39 55	M F F F F	colorectal breast parotid adenocarcinoma breast	8 50 285 71
100 100 100 100 100 100 100	1022 1023 1024 1025 1026 1027 1028	43 78 40 52 39 55 52	M F F F	colorectal breast parotid adenocarcinoma breast breast	8 50 285 71 34
100 100 100 100 100 100 100 100	1022 1023 1024 1025 1026 1027 1028 1029	43 78 40 52 39 55 52 38	M F F F F	colorectal breast parotid adenocarcinoma breast breast breast	8 50 285 71 34 36
100 100 100 100 100 100 100	1022 1023 1024 1025 1026 1027 1028	43 78 40 52 39 55 52	M F F F F M	colorectal breast parotid adenocarcinoma breast breast breast breast melanoma	8 50 285 71 34 36 29

One patient taken off study due to progressive disease. Allowed to resume ANGIOZYME on a compassionate basis.

As of September 1, 2001, all patients were off study. (Although one patient resumed treatment per above note)

Table IV Pharmacokinetic parameters of ANGIOZYME after bolus subcutaneous administration.

		e/in³	30 m	g/m²	100 m	g/m²	300 m	g/m²
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Day I Cmax (ug/mL)	0.43	0.07	0.62	0.28	3.17	69.0	8.91	2.93
AUCt (ug*hr/mL)	2.60	1.43	6.04	2.70	34.14	2.28	89.87	21.68
AUCinf (ug*hr/mL)	4.40	90.0	7.99	1.66	37.51	1.91	101.57	13.47
t(1/2) (hr)	3.62	0.79	7.32	6.94	4.58	0.02	9.26	6.20
CL/F (L/hr/m ²)	2.24	0.08	3.73	0.92	2.96	0.61	2.99	0.43
Day 29 Cmax (ug/mL)	0.35	0.19	1.17	0.53	3.23	0.35	8.93	6.71
AUCt (ug*hr/mL)	2.11	1.31	7.29	1.16	31.87	1.91	119.42	65.84
AUCinf (ug*hr/mL)	3.38	1.31	8.54	2.46	33.61	2.16	132.73	67.82
t(1/2) (hr)	4.49	1.60	3.26	1.01	4.66	0.35	7.24	0.70
CL/F (L/hr/m²)	2.49	1.48	3.69	0.94	3.21	0.56	2.72	1.40

Table V: Human FLT DNAzyme and Substrate Sequence

Pos	Substrate	Seq ID No	DNAzyme	Seq ID No
17	ncanance e cacanaca	1	GGGAGGAG GGCTAGCTACAACGA CGAGAGGA	1703
28	CCUCCCCG G CAGCGGCG	2	CGCCGCTG GGCTAGCTACAACGA CGGGGAGG	1704
31	CCCCGGCA G CGGCGGCG	3	CGCCGCCG GGCTAGCTACAACGA TGCCGGGG	1705
34	CGGCAGCG G CGGCGGCU	4	AGCCGCCG GGCTAGCTACAACGA CGCTGCCG	1706
37	CAGCGGCG G CGGCUCGG	5	CCGAGCCG GGCTAGCTACAACGA CGCCGCTG	1707
40	CGGCGGCG G CUCGGAGC	6	GCTCCGAG GGCTAGCTACAACGA CGCCGCCG	1708
47	GGCUCGGA G CGGGCUCC	7	GGAGCCCG GGCTAGCTACAACGA TCCGAGCC	1709
51	CGGAGCGG G CUCCGGGG	8	CCCCGGAG GGCTAGCTACAACGA CCGCTCCG	1710
59	GCUCCGGG G CUCGGGUG	9	CACCCGAG GGCTAGCTACAACGA CCCGGAGC	1711
65	GGGCUCGG G UGCAGCGG	10	CCGCTGCA GGCTAGCTACAACGA CCGAGCCC	1712
67	GCUCGGGU G CAGCGGCC	11	GGCCGCTG GGCTAGCTACAACGA ACCCGAGC	1713
70	CGGGUGCA G CGGCCAGC	12	GCTGGCCG GGCTAGCTACAACGA TGCACCCG	1714
73	GUGCAGCG G CCAGCGGG	13	CCCGCTGG GGCTAGCTACAACGA CGCTGCAC	1715
77	AGCGGCCA G CGGGCCUG	14	CAGGCCCG GGCTAGCTACAACGA TGGCCGCT	1716
81	GCCAGCGG G CCUGGCGG	15	CCGCCAGG GGCTAGCTACAACGA CCGCTGGC	1717
86	CGGGCCUG G CGGCGAGG	16	CCTCGCCG GGCTAGCTACAACGA CAGGCCCG	1718
89	GCCUGGCG G CGAGGAUU	17	AATCCTCG GGCTAGCTACAACGA CGCCAGGC	1719
95	CGGCGAGG A UUACCCGG	18	CCGGGTAA GGCTAGCTACAACGA CCTCGCCG	1720
98	CGAGGAUU A CCCGGGGA	19	TCCCCGGG GGCTAGCTACAACGA AATCCTCG	1721
108	CCGGGGAA G UGGUUGUC	20	GACAACCA GGCTAGCTACAACGA TTCCCCGG	1722
111	GGGAAGUG G UUGUCUCC	21	GGAGACAA GGCTAGCTACAACGA CACTTCCC	1723
114	AAGUGGUU G UCUCCUGG	22	CCAGGAGA GGCTAGCTACAACGA AACCACTT	1724
122	GUCUCCUG G CUGGAGCC	23	GGCTCCAG GGCTAGCTACAACGA CAGGAGAC	1725
128	UGGCUGGA G CCGCGAGA	24	TCTCGCGG GGCTAGCTACAACGA TCCAGCCA	1726
131	CUGGAGCC G CGAGACGG	25	CCGTCTCG GGCTAGCTACAACGA GGCTCCAG	1727
136	GCCGCGAG A CGGGCGCU	26	AGCGCCCG GGCTAGCTACAACGA CTCGCGGC	1728
140	CGAGACGG G CGCUCAGG	27	CCTGAGCG GGCTAGCTACAACGA CCGTCTCG	1729
142	AGACGGGC G CUCAGGGC	28	GCCCTGAG GGCTAGCTACAACGA GCCCGTCT	1730
149	CGCUCAGG G CGCGGGC	29	GCCCCGCG GGCTAGCTACAACGA CCTGAGCG	1731
151	CUCAGGGC G CGGGGCCG	30	CGGCCCCG GGCTAGCTACAACGA GCCCTGAG	1732
156	GCCCCGG G CCGCCGGC	31	GCCGCCGG GGCTAGCTACAACGA CCCGCGCC	1733
160	CGGGGCCG G CGGCGGCG	32	CGCCGCCG GGCTAGCTACAACGA CGGCCCCG	1734
163	GGCCGGCG G CGGCGAAC	33	GTTCGCCG GGCTAGCTACAACGA CGCCGGCC	1735
166	CGGCGGCG G CGAACGAG	34	CTCGTTCG GGCTAGCTACAACGA CGCCGCCG	1736
170	GGCGGCGA A CGAGAGGA	35	TCCTCTCG GGCTAGCTACAACGA TCGCCGCC	1737
178	ACGAGAGG A CGGACUCU	36	AGAGTCCG GGCTAGCTACAACGA CCTCTCGT	1738
182	GAGGACGG A CUCUGGCG	37	CGCCAGAG GGCTAGCTACAACGA CCGTCCTC	1739
188	GGACUCUG G CGGCCGGG	38	CCCGGCCG GGCTAGCTACAACGA CAGAGTCC	1740
191	CUCUGGCG G CCGGGUCG	39	CGACCCGG GGCTAGCTACAACGA CGCCAGAG	1741
196	GCGGCCGG G UCGUUGGC	40	GCCAACGA GGCTAGCTACAACGA CCGGCCGC	1742
199	GCCGGGUC G UUGGCCGG	41	CCGGCCAA GGCTAGCTACAACGA GACCCGGC	1743
203	GGUCGUUG G CCGGGGGA	42	TCCCCCGG GGCTAGCTACAACGA CAACGACC	1744
212	CCGGGGGA G CGCGGGCA	43	TGCCCGCG GGCTAGCTACAACGA TCCCCCGG	1745
214	GGGGGAGC G CGGGCACC	44	GGTGCCCG GGCTAGCTACAACGA GCTCCCCC	
218	GAGCGCGG G CACCGGGC	45	GCCCGGTG GGCTAGCTACAACGA CCGCGCTC	
220	GCGCGGGC A CCGGGCGA	46	TCGCCCGG GGCTAGCTACAACGA GCCCGCGC	
225	GGCACCGG G CGAGCAGG	47	CCTGCTCG GGCTAGCTACAACGA CCGGTGCC	
229	CCGGGCGA G CAGGCCGC	48	GCGGCCTG GGCTAGCTACAACGA TCGCCCGG	

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233	GCGAGCAG G CCGCGUCG	49	CGACGCGG GGCTAGCTACAACGA CTGCTCGC	1751
236	AGCAGGCC G CGUCGCGC	50	GCGCGACG GGCTAGCTACAACGA GGCCTGCT	1752
238	CAGGCCGC G UCGCGCUC	51	GAGCGCGA GGCTAGCTACAACGA GCGGCCTG	1753
241	GCCGCGUC G CGCUCACC	52	GGTGAGCG GGCTAGCTACAACGA GACGCGGC	1754
243	CGCGUCGC G CUCACCAU	53	ATGGTGAG GGCTAGCTACAACGA GCGACGCG	1755
247	UCGCGCUC A CCAUGGUC	54	GACCATGG GGCTAGCTACAACGA GAGCGCGA	1756
250	CGCUCACC A UGGUCAGC	55	GCTGACCA GGCTAGCTACAACGA GGTGAGCG	1757
253	UCACCAUG G UCAGCUAC	56	GTAGCTGA GGCTAGCTACAACGA CATGGTGA	1758
257	CAUGGUCA G CUACUGGG	57	CCCAGTAG GGCTAGCTACAACGA TGACCATG	1759
260	GGUCAGCU A CUGGGACA	58	TGTCCCAG GGCTAGCTACAACGA AGCTGACC	1760
266	CUACUGGG A CACCGGGG	59	CCCCGGTG GGCTAGCTACAACGA CCCAGTAG	1761
268	ACUGGGAC A CCGGGGUC	60	GACCCOGG GGCTAGCTACAACGA GTCCCAGT	1762
274	ACACCEGE G UCCUECUE	61	CAGCAGGA GGCTAGCTACAACGA CCCGGTGT	1763
279	GGGUCCU G CUGUGCGC	62	GCGCACAG GGCTAGCTACAACGA AGGACCCC	1764
282	GUCCUGCU G UGCGCGCU	63	AGCGCGCA GGCTAGCTACAACGA AGCAGGAC	1765
284	CCUBCUGU G CGCGCUGC	64	GCAGCGCG GGCTAGCTACAACGA ACAGCAGG	1766
286	UGCUGUGC G CGCUGCUC	65	GAGCAGCG GGCTAGCTACAACGA GCACAGCA	1767
288	CUGUGCGC G CUGCUCAG	66	CTGAGCAG GGCTAGCTACAACGA GCGCACAG	1768
291	UGCGCGCU G CUCAGCUG	67	CAGCTGAG GGCTAGCTACAACGA AGCGCGCA	1769
296	GCUGCUCA G CUGUCUGC	68	GCAGACAG GGCTAGCTACAACGA TGAGCAGC	1770
299	GCUCAGCU G UCUGCUUC	69	GAAGCAGA GGCTAGCTACAACGA AGCTGAGC	1771
303	AGCUGUCU G CUUCUCAC	70	GTGAGAAG GGCTAGCTACAACGA AGACAGCT	1772
310	UGCUUCUC A CAGGAUCU	71	AGATCCTG GGCTAGCTACAACGA GAGAAGCA	1773
315	CUCACAGG A UCUAGUUC	72	GAACTAGA GGCTAGCTACAACGA CCTGTGAG	1774
320	AGGAUCUA G UUCAGGUU	73	AACCTGAA GGCTAGCTACAACGA TAGATCCT	1775
326	UAGUUCAG G UUCAAAAU	74	ATTTTGAA GGCTAGCTACAACGA CTGAACTA	1776
333	GGUUCAAA A UUAAAAGA	75	TCTTTTAA GGCTAGCTACAACGA TTTGAACC	1777
341	AUUAAAAG A UCCUGAAC	76	GTTCAGGA GGCTAGCTACAACGA CTTTTAAT	1778
348	GAUCCUGA A CUGAGUUU	77	AAACTCAG GGCTAGCTACAACGA TCAGGATC	1779
353	UGAACUGA G UUUAAAAG	78	CTTTTAAA GGCTAGCTACAACGA TCAGTTCA	1780
362	UUUAAAAG G CACCCAGC	79	GCTGGGTG GGCTAGCTACAACGA CTTTTAAA	1781
364	UAAAAGGC A CCCAGCAC	80	GTGCTGGG GGCTAGCTACAACGA GCCTTTTA	1782
369	GGCACCCA G CACAUCAU	81	ATGATGTG GGCTAGCTACAACGA TGGGTGCC	1783
371	CACCCAGC A CAUCAUGC	82	GCATGATG GGCTAGCTACAACGA GCTGGGTG	1784
373	CCCAGCAC A UCAUGCAA	83	TTGCATGA GGCTAGCTACAACGA GTGCTGGG	1785
376	AGCACAUC A UGCAAGCA	84	TGCTTGCA GGCTAGCTACAACGA GATGTGCT	1786
378	CACAUCAU G CAAGCAGG	85	CCTGCTTG GGCTAGCTACAACGA ATGATGTG	1787
382	UCAUGCAA G CAGGCCAG	86	CTGGCCTG GGCTAGCTACAACGA TTGCATGA	1788
386	GCAAGCAG G CCAGACAC	87	GTGTCTGG GGCTAGCTACAACGA CTGCTTGC	1789
391	CAGGCCAG A CACUGCAU	88	ATGCAGTG GGCTAGCTACAACGA CTGGCCTG	
393	GGCCAGAC A CUGCAUCU	89	AGATGCAG GGCTAGCTACAACGA GTCTGGCC	
396	CAGACACU G CAUCUCCA	90	TGGAGATG GGCTAGCTACAACGA AGTGTCTG	
398	GACACUGC A UCUCCAAU	91	ATTGGAGA GGCTAGCTACAACGA GCAGTGTC	
405	CAUCUCCA A UGCAGGGG	92	CCCCTGCA GGCTAGCTACAACGA TGGAGATG	
407	UCUCCAAU G CAGGGGG	93	CCCCCTG GGCTAGCTACAACGA ATTGGAGA	1795
418	GGGGGAA G CAGCCCAU	94	ATGGGCTG GGCTAGCTACAACGA TTCCCCCC	1796
421	GGGAAGCA G CCCAUAAA	95	TTTATGGG GGCTAGCTACAACGA TGCTTCCC	1797
425	AGCAGCCC A UAAAUGGU	96	ACCATTTA GGCTAGCTACAACGA GGGCTGCT	1798
429	GCCCAUAA A UGGUCUUU	97	AAAGACCA GGCTAGCTACAACGA TTATGGGC	
432	CAUAAAUG G UCUUUGCC	98	 _ 	
438	UGGUCUUU G CCUGAAAU	99	GGCAAAGA GGCTAGCTACAACGA CATTTATG	
			ATTTCAGG GGCTAGCTACAACGA AAAGACCA	1801
445	UGCCUGAA A UGGUGAGU	100	ACTCACCA GGCTAGCTACAACGA TTCAGGCA	1802

448 CUGAARUS & UGAGURAS 452 ANDEGURA G URAGGRAN 102 TITCCTTA GOCTAGCTRACANGA CATTTOS 1805 461 URAGGRAS G COGAGCAU 104 ANTOCTAS GOCTAGCTRACANGA TRACCATT 1805 468 AGGGRAS G CUGACCAU 104 ANTOCTAS GOCTAGCTRACANGA TRACCATT 1805 473 ANGGURGA G CUCARCUN 475 GGCUGAGCA URACUNAN 106 TITAGTTA GOCTAGCTRACANGA CTTTCGCT 1806 476 UGAGCAUA A CUCARAUN 107 AGGCTRACTRACANGA COTTAGCTRACANGA CTTTCGCT 1807 477 ANAGCURG A CURANUCU 108 CAGGCRAG GOCTAGCTRACANGA CATTGCCT 1809 487 UGAGCAUA A CUCARAUCU 109 TCCACAGG GOCTAGCTRACANGA GATTTAT 1810 487 CURANUCU G CCUGUGGA 109 TCCACAGG GOCTAGCTRACANGA TATGCTCA 1809 488 AUACURA N UGGCCUS 108 CAGGGRAGA GOCTAGCTRACANGA TATGCTCA 1809 491 AUCUGCU G UGGARGA 110 TCCTCCA GOCTAGCTRACANGA TATGCTCA 1811 500 UGGARGAA N UGGCANAC 111 STTTCCCA GOCTAGCTRACANGA TATCTCCA 1812 501 UGGARGAA A CAAUUCUG 113 CAGATTG GOCTAGCTRACANGA TATCTCCA 1813 502 UGGARGAA A UGCUGCAG 114 CTGCCAGG GOCTAGCTRACANGA TATCTCCA 1815 515 ACAAUUCU G CAGUACUU 115 ARTGTTG GOCTAGCTRACANGA TATCCCATT 1815 516 AUCUUCUA A CUCUGCAG 114 CTGCCAGA GOCTAGCTRACANGA TATCCCATT 1815 520 UCUGCAGU A CUUUAACC 117 GGTTAGG GOCTAGCTRACANGA TOTCCATT 1817 521 ACACUUCUA A CUUUAACC 117 GGTTAGG GOCTAGCTRACANGA TATCCCATT 1817 526 GUACUUUTA A CUUUGAAC 118 GAGGTAG GGCTAGCTRACANGA TATCAGAT 1819 527 AUGUCUCA G CACCUC 119 GAGGTAG GGCTAGCTRACANGA TATAGCTC 1820 528 GUACUUTA A CUUUGAAC 118 GAGGTAG GGCTAGCTRACANGA TATAGCTC 1820 529 UCUGCAGU A CUUUAACC 117 GGTTAGG GGCTAGCTRACANGA TATAGAGT 1821 531 ANCACUA A CACCUCA 121 TCCTTGAG GGCTAGCTRACANGA TATAGAGT 1821 532 ANCCUUGA A CACCUC 129 GAGGTTG GGCTAGCTRACANGA TATAGAGT 1820 533 ANCCUUGA A CACCUC 129 GAGGTTG GGCTAGCTRACANGA TATAGAGT 1820 544 CAGCUCAA G CANACCAC 121 TCCTTGAG GGCTAGCTRACANGA TATAGAGT 1820 555 CCUUGAACA A CACCUC 124 AGCCGTG GGCTAGCTRACANGA TTGTGTCC 1823 556 CUUGAACA A CACCUC 124 AGCCGTG GGCTAGCTRACANGA TTGTGTCC 1823 557 CAAACCAC A CUGGCA 121 TCCTTGAG GGCTAGCTRACANGA TTGTGTCC 1823 557 CA					
461 UAAGGAAA G CGANAGGC 103 GCCTTCG GGCTAGCTACAACGA TTTCCTTA 1805 468 AGCGAAAG G CUGAGCAU 104 ANGCTCAG GGCTAGCTACAACGA CTTTCGCT 1806 473 AAGGCUGA G CAUAACUA 105 TAGTTAG GGCTAGCTACAACGA CTTCGGCT 1806 475 GGCUGAGC A UAACUAAA 106 TTTAGTTAG GGCTAGCTACAACGA CTAGGCCT 1808 476 UGAACAUA A CUAAAUCU 107 AGATTTAG GGCTAGCTACAACGA TATGCTCA 1809 487 CUAAAUCUA A CUAAAUCU 107 AGATTTAG GGCTAGCTACAACGA TATGCTCA 1809 489 AUAACUAA A UCUGCCUG 108 CAGGGCAGA GGCTAGCTACAACGA TATGCTCA 1809 487 CUAAAUCUG G CUGUGGA 109 TCCACAGG GGCTAGCTACAACGA TATGCTTA 1811 487 AUCUGCCU G UGGAAGAA 110 TCTTCCA GGCTAGCTACAACGA AGATTTAG 1811 500 UGGAAGAA A UGGCAAC 111 GTTTGCCA GGCTAGCTACAACGA AGATTTAG 1813 501 GGGAACAA CAUUCUGCAG 111 GTTTGCCA GGCTAGCTACAACGA AGATTTAG 1813 507 AAUGGCAA CAAUUCUG 113 CAGAATTG GGCTAGCTACAACGA CATTCTT 1815 510 GGCAAACA UUCUGCAG 114 CTGCAGAA GGCTAGCTACAACGA CATTCTT 1815 511 AUCUGCAG A CAGUCUU 115 AAGTACTG GGCTAGCTACAACGA TGTTTGCC 1816 512 GUCUUUA A CAUUUAA 116 TCAACAG GGCTAGCTACAACGA AGATTTGT 1815 513 AACAAUUCU G CAGUACUU 115 AAGTACTG GGCTAGCTACAACGA AGATTGT 1815 514 AUUCUGCAG A CUUUAACC 117 GGTTAAG GGCTAGCTACAACGA AGATTGT 1815 515 ACCAUUCUA A CUUUGAAC 116 TTAAGATG GGCTAGCTACAACGA ACTGCACA 1819 516 GUCUUUA A CCUUGAAC 117 GGTTAAGG GGCTAGCTACAACGA ACTGCACA 1819 517 AUAGCACA CACAGCUC 117 GGTTAAGG GGCTAGCTACAACGA ACTGCACA 1819 518 AUCUGCAG A CUUUAACC 118 GTTCAAGG GGCTAGCTACAACGA ACTGCACA 1819 519 CCUUGAAC A CAGCUCAA 120 TTGAGCTG GGCTAGCTACAACGA ACTGCACA 1820 510 GCAACCAC CACGCUC 121 GGGTTAGCTACAACGA TTGAGCTG 1820 511 AGCAACCA CACGCUC 122 GTGGTTTG GGCTAGCTACAACGA TTGAGCTG 1820 512 CCUUGAAC A CACGCUC 122 GTGGTTTG GGCTAGCTACAACGA TTGAGCTG 1820 513 AACCCGA A CCCACACCA 122 TTGAGTG GGCTAGCTACAACGA TTGAGCTG 1820 514 CAGCUCAG C CACAGCUC 122 GTGGTTTG GGCTAGCTACAACGA TTGAGCTG 1820 515 CCUUGAAC A CCCACCUG 122 GTGGTTTG GGCTAGCTACAACGA TTGAGCTG 1820 516 CUUCCAAC A CUGCCUC 125 GAAGCAC C CAGGCTAGCTACAACGA TTGAGCTG 1820 517 AGAGCACA A CUCCAACA 122 GTGGTTTG GGCTAGCTACAACGA TTGAGCTG 1820 518 CUUCCACA A CUCCAACCA 122 GTGGTTTG GGCTAGCTACAACGA ACTGAGTT 1	448	CUGAAAUG G UGAGUAAG	101	CTTACTCA GGCTAGCTACAACGA CATTTCAG	1803
468 AGGGARAG G CUGRAGCAU 104 ATGCTCAG GGCTAGCTACAACGA CTTTCGCT 1806 473 AAGGCUGA G CAIDACUA 105 TAGTTATO GGCTAGCTACAACGA CTCAGCCT 1807 475 GGCUGAGC A UAAACUAA 105 TAGTTATO GGCTAGCTACAACGA CTCAGCCT 1807 476 UGAGCAUA A CUCAAUCU 107 AGATTAG GGCTAGCTACAACGA CTCAGCCT 1809 478 UGAGCAUA A CUCAAUCU 107 AGATTAG GGCTAGCTACAACGA TATGCTCA 1809 487 CUCAAUCU G CUCUUGGA 109 TCCAGCG GGCTAGCTACAACGA TATGCTCA 1810 487 CUCAAUCU G CUCUUGGA 109 TCCAGCG GGCTAGCTACAACGA TATGCTCA 1811 4891 AUCUGCCU G UGGAAGAA 110 TCCTTCCA GGCTAGCTACAACGA AGATTTAG 1812 490 OGGAAGAA A UGCCAAAC 111 GTTTGCCA GGCTAGCTACAACGA AGATTTAG 1812 500 OGGAAGAA A CAADUCUG 113 CAGATTG GGCTAGCTACAACGA AGATTAG 1813 501 AAGAAUG G CAAACAAU 112 ATTGTTTC GGCTAGCTACAACGA ACTTTCTT 1815 503 AAGAAUG G CAAACAAU 112 ATTGTTTC GGCTAGCTACAACGA ACTTTCTT 1815 510 GGCAAACA A UUCUGCAG 114 CTGCAGAA GGCTAGCTACAACGA TATTCTT 1815 511 ACAUUCU G CAGUCUU 115 AAGTTACT GGCTAGCTACAACGA TATTCTT 1817 512 ACAAUUCU G CAGUCUU 115 AAGTTACT GGCTAGCTACAACGA TATTCTT 1817 513 AACAUUCU G CAGUCUU 117 AGATTACT GGCTAGCTACAACGA TATTCTT 1817 514 AAUUCUGCAG G CUCUAACC 117 GGTTAAAG GGCTAGCTACAACGA TATGCTAG 1818 520 UCUGCAGU A CUUUAAA 116 TTAAAGTA GGCTAGCTACAACGA TATGCTAG 1818 521 ACAUUCU A CCUUGAAC 119 GAGCTGT GGCTAGCTACAACGA TATAGGTA 1819 523 CUUGAAC A CACAGCUC 119 GAGCTGT GGCTAGCTACAACGA TATAGGTA 1819 533 CCUUGAA C CACAGCUC 119 GAGCTGT GGCTAGCTACAACGA TATAGGTA 1821 534 UGAACCAC C CUCAACCG 121 TGCTTGAG GGCTAGCTACAACGA TATAGGTA 1821 535 CCUUGAAC A CACAGCUC 119 GAGCTGT GGCTAGCTACAACGA TTCAAGGT 1821 544 CAGCUCAA C CACCUC 122 CAGTTTG GGCTAGCTACAACGA TTCAAGGT 1821 555 CCUUCAACC A CAGCUCC 122 CAGTTTG GGCTAGCTACAACGA TTCAAGCT 1826 556 UGAACCAA CCACCUC 122 CAGTTTG GGCTAGCTACAACGA TTCAAGCT 1826 557 CCACACUG C CUAACCAC 122 GAGTTG GGCTAGCTACAACGA TTGAGTA 1821 557 CCACACUG C CUAACCA 122 GAGTTG GGCTAGCTACAACGA TTGAGTA 1826 557 CCACACUG C CUACUC 124 ACCCAGTG GGCTAGCTACAACGA TTGAGTA 1826 557 CCACACUG C CUACUC 125 GAGCGAG GGCTAGCTACAACGA TTGAGAG 1827 557 CCACACUG C CAAACCAC 122 GAGTTAG GGCTAGCTACAACGA TTGAGAG 1827 558 CAAACCAC	452	AAUGGUGA G UAAGGAAA	102	TTTCCTTA GGCTAGCTACAACGA TCACCATT	1804
473 AAGGCUGA G CAUAACUA 105 TAGTTATG GGCTAGCTACAACGA TCAGCCTT 1807 475 GGCUGAGC A UAACUAAA 106 TTTAGTTA GGCTAGCTACAACGA GCTCAGCC 1808 476 UGACCAUA A UCUGCCUG 107 AGATTTAG GGCTAGCTACAACGA TAGCTCA 1809 483 AUAACUAA A UCUGCCUG 108 CAGGCAGA GGCTAGCTACAACGA TATGCTCA 1809 484 AUAACUAA A UCUGCCUG 108 CAGGCAGA GGCTAGCTACAACGA TATGCTCA 1819 487 CUDAADUCU G CCUGUGGA 109 TCCACAGG GGCTAGCTACAACGA AGATTTAG 1811 487 CUDAADUCU G CCUGUGGA 109 TCCACAGG GGCTAGCTACAACGA AGATTTAG 1811 487 AUGUGCCU G UGGAAGAA 111 CTTTCCCA GGCTAGCTACAACGA AGATTTAG 1811 500 UGGAAGAA A UGGCAAAC 111 GTTTCCCA GGCTAGCTACAACGA AGACCAGA 1811 501 AAGAAAUG G CAAACAAU 112 ATTGTTTG GGCTAGCTACAACGA AGACCAGA 1815 507 AADGCAA A CAADUCUG 113 CAGAATTG GGCTAGCTACAACGA TTTCCCAT 1815 515 ACAAUCU G CAGUACUU 115 AAGTACTG GGCTAGCTACAACGA TTTCCCAT 1815 516 ACAAUCU G CAGUACUU 115 AAGTACTG GGCTAGCTACAACGA TTTCCCAT 1818 520 UCUGCAGU A CUUUAAC 116 TTAAAGTA GGCTAGCTACAACGA AGATTTG 1817 521 ACAUUCU A CCUUGAAC 117 GGTTAAAG GCCTAGCTACAACGA ACTGCAGA 1819 522 GUUUAA CCUUGAAC 118 GTTCAAGG GGCTAGCTACAACGA ACTGCAGA 1819 523 AACCUUGA A CCUUGAAC 119 GAGCTAGTACAACGA ACTGCAGA 1819 524 GUACUUA A CCUUGAAC 118 GTTCAAGG GGCTAGCTACAACGA TCACAGAT 1820 535 CCUUGAAC A CACGCUCA 120 TTGAGCTG GGCTAGCTACAACGA TCACAGGT 1821 536 UGAAACCA G COCAACCU 120 TTGAGCTG GGCTAGCTACAACGA TCACAGGT 1821 537 AACCUUGA A CACGCUCA 120 TTGAGCTG GGCTAGCTACAACGA TCACAGGT 1821 538 UGAAACCA G COCAACCU 122 GTGGTTTG GGCTAGCTACAACGA TCACAGTT 1821 539 CACACCUGA G CACACCUC 122 GTGGTTTG GGCTAGCTACAACGA TCACAGTT 1821 540 CAGCUCAA G CACACCUC 122 GTGGTTTG GGCTAGCTACAACGA TCACAGTT 1821 551 ACCAACCG G CACACCUC 122 GTGGTTTG GGCTAGCTACAACGA TTGGTTCA 1825 552 CACACCG G CACACCCC 122 GTGGTTTG GGCTAGCTACAACGA TTGGTTCA 1825 553 CACACCG G CACACCCC 122 GTGGTTTG GGCTAGCTACAACGA TTGGTTCA 1825 554 UGCAACA A CCCCCCU 123 CAGGCTAG GGCTAGCTACAACGA TTGGTTCA 1825 555 CUUCAAC G CUUCACC 123 CAGGCTAG GGCTAGCTACAACGA TTGGTTCA 1825 556 CUUCACA G CUUCACC 123 CAGGCTAG GGCTAGCTACAACGA TTGGTTCA 1825 557 CACACCG G CACACCCU 122 GAGGTTA GGCTAGCTACAACGA TTGGTTCA 18	461	UAAGGAAA G CGAAAGGC	103	GCCTTTCG GGCTAGCTACAACGA TTTCCTTA	1805
475 GGCUGAGC A UAACURAA 106 TTTAGTTA GGCTAGCTACAACQA GCTCAGCC 1808 UAGACAUA A CUAADUCU 107 AGATTTAG GGCTAGCTACAACQA TATGCTCA 1809 AGATTAG 1809 UAGACAUA A CUAADUCU 108 CAGGCGAGA GGCTAGCTACAACQA TATGCTCA 1809 AGATTAG 1807 CUAADUCU G CUGUGGA 109 TCCACAGG GGCTAGCTACAACQA TATGCTCA 1810 AUCUGCCU G UGGAAGAA 110 TTCTTCCA GGCTAGCTACAACQA AGATTTAG 1811 AUCUGCCU G UGGAAGAA 110 TTCTTCCA GGCTAGCTACAACQA AGATTTAG 1811 GTTGCCA GGCTAGCTACAACQA AGATTAG 1812 AUCUGCCA G LAGACAAU 112 ATTGTTC GGCTAGCACACA TTCTTCCA 1814 AUCUGCCA A CAADUCUG 113 CAGAATTG GGCTAGCTACAACQA TTCTTCT 1814 CTGCAGAACA AUCUGGCAG 114 CTGCAGAA GGCTAGCTACAACQA TGTTTGCC 1815 ACGAACA AUCUGGCAG A CUUTAACAC 117 GGCTAAAG GGCTAGCTACAACQA TGCTAGACA 1819 AUCUGCAG G UACUUUAA 116 TTAAAGTA GGCTAGCTACAACQA TATGCCAGA 1819 ACGCAGAA AGATTGC 1817 GGCTAAAGA GGCTAGCTACAACQA TATGCCAGA 1819 ACGCAGAA AGATTGC 1819 ACCUGCAG A CUUTAACAC 118 GTTCAAGG GCCTAGCTACAACQA TATAGTAC 1819 ACCUGCAG A CUUTAACAC 119 GGCTAAGA GGCTAGCTACAACQA TATAGTAC 1819 ACCUGCAG A CACAGCUC 119 GAGCTGT GGCTAGCTACAACQA TATAGTAC 1820 ACCUCAA 120 TTAAGACTG GGCTAGCTACAACQA TATAGTAC 1821 ACCUGAAC A CACAGCUC 120 TTAAGACTG GGCTAGCTACAACQA TATAGTAC 1821 ACCUGAAC A CACAGCUC 120 TTAAGACTG GGCTAGCTACAACQA TATAGTAC 1822 AGATCACACAC GCCACUG 3 CATAGCCAG 3 CACAGCCG 3 CACACCG 3 CACAC	468	AGCGAAAG G CUGAGCAU	104	ATGCTCAG GGCTAGCTACAACGA CTTTCGCT	1806
478 UGAGCAUA A CUARAUCU 107 AGATTAG GGCTAGCTACAACGA TATGCTCA 1809 487 CUARAUCU G CUGUUGA 109 CAGGCAGA GGCTAGCTACAACGA TATGTTAT 1810 487 CUARAUCU G CUGUUGA 109 TCACACGA GGCTAGCTACAACGA AGATTAG 1811 491 AUCUGCCU G UGGAAGAA 110 TTCTTCCA GGCTAGCTACAACGA AGATTAGA 1811 500 UGGAAGAA A UGGCAAAC 111 GTTTGCCA GGCTAGCTACAACGA AGATTAGA 1812 501 AAGAAAUG G CAAACAU 112 ATTGTTA GGCTAGCTACAACGA TTCTTCCA 1813 503 AAGAAAUG G CAAACAU 112 ATTGTTA GGCTAGCTACAACGA TTCTTCCA 1813 504 AAGAAAUG G CAAACAU 112 ATTGTTA GGCTAGCTACAACGA TTTTCCA 1815 515 ACAAUCU G CAGUACUU 115 AAGTACTA GGCTAGCTACAACGA TTTTGCC 1816 515 ACAAUCU G CAGUACUU 115 AAGTACTA GGCTAGCTACAACGA TTTTGCC 1816 518 AUUCUGCAG 114 CTGCAGAA GGCTAGCTACAACGA TGTATGCA 1817 520 UCUGCAGU A CUUUAAC 116 TTAAAGTA GGCTAGCTACAACGA TGTATGCA 1819 520 UCUGCAGU A CUUUAAC 117 GGTTAAAG GGCTAGCTACAACGA TGCAGAAT 1819 526 GUACUUA A CCUUGAAC 118 GTCAACG GGCTAGCTACAACGA TAAAGTAC 1820 527 AACCUUGA A CCUUGAAC 119 GGTCAGC GCTAGCTACAACGA TCAAGGA TAAAGTAC 1821 538 CUUUAAA CACACCUCA 120 TTAAACTA GGCTAGCTACAACGA TCAAGGAT 1821 539 AACCUUGA A CCUUGAAC 120 TTAAACTA GGCTAGCTACAACGA TCAAGGAT 1821 531 CUUGAACAC G CUCAACCA 121 TGCTTGA GGCTAGCTACAACGA TTCAAGCT 1821 532 CUUUGAA CACACCUCA 120 TTAAACTA GGCTAGCTACAACGA TTCAAGCT 1822 538 UGAACACA G CUCAACCA 121 TGCTTGA GGCTAGCTACAACGA TTCAAGCT 1823 538 UGAACACA G CUCAACCA 122 GTGGTTTG GGCTAGCTACAACGA TTGAAGCT 1824 544 CAGCUCAA G CAACCCC 122 GTGGTTTG GGCTAGCTACAACGA TTGAAGCT 1824 554 CAGACCA G CUCAACCA 122 GTGGTTTG GGCTAGCTACAACGA TTGAAGCT 1824 555 CUUCAACAC G CUCAACCA 121 TGCTTGA GGCTAGCTACAACGA TTGAAGCT 1825 551 AGCAAACC A CACCUGCA 121 TGCTTGA GGCTAGCTACAACGA TTGAGCTA 1825 552 CAAACCA A CACCUGCA 123 CAGTTTG GGCTAGCTACAACGA TGTGTTTC 1825 553 CAAACCA A CUUGACCU 125 CAGCGC GGCTAGCTACAACGA TGGGTTTG 1826 553 CACCUUCA G CUUCACA 126 TGTAGAGA GGCTAGCTACAACGA TGGGTTAG 1827 557 CCACACUU G CUCAACU 127 TGCAGCT GGCTAGCTACAACGA TTGAGATA 1827 557 CCACACUU G CUCAACU 128 TATTCAG GGCTAGCTACAACGA TTGAGTA 1827 558 CUCUCACA G CUUCACA 126 TGTAGAGA GGCTAGCTAACAACGA TTGATATA 1830 569 CUCUCAC	473	AAGGCUGA G CAUAACUA	105	TAGTTATG GGCTAGCTACAACGA TCAGCCTT	1807
483 NUAACURA A UCUGCCUG 108 CAGGCAGA GGCTAGCTACAACGA TTAGTTAT 1810 487 CUAABUCU G CCUGUUGA 109 TCCACAGG GGCTAGCTACAACGA AGACTTAG 1811 491 AUCUGCCU G UGGAAGAA 110 TTCTCCA GGCTAGCTACAACGA AGACTTAG 1811 500 UGGAAGAA A UGGCAAAC 111 GTTTCCA GGCTAGCTACAACGA AGGCAGAT 1812 500 UGGAAGAA A UGGCAAAC 111 GTTTGCA GGCTAGCTACAACGA CATTTCTC 1814 501 AAGAAUG G CAAACAAU 112 ATTGTTG GGCTAGCTACAACGA CATTTCTT 1814 502 AUGUGCA A CAAUUCUG 113 CAGATTG GGCTAGCTACAACGA CATTTCTT 1815 510 GGCAAACA A UUCUGCAG 114 CTGCAGAA GGCTAGCTACAACGA TGTCTAT 1815 5110 GGCAAACA A UUCUGCAG 114 CTGCAGAA GGCTAGCTACAACGA TGTCTAT 1815 512 ACAAUUCU G CAGUACUU 115 AAGTACTG GGCTAGCTACAACGA TGCCATAT 1815 513 AUCUGCA G UACUUUAA 116 TTAAAGTA GGCTAGCTACAACGA AGAATTGT 1817 514 AUUCUGCAG UACUUUAAC 117 GGTTAAAG GGCTAGCTACAACGA AGAATTGT 1817 515 CCUUGAAC A CUUGAAC 118 GTCAAGG GGCTAGCTACAACGA AGAATTGT 1820 515 CCUUGAAC A CACACUC 119 GAGCTGT GGCTAGCTACAACGA TCAAGGTT 1821 515 CCUUGAAC A CACACUC 119 GAGCTGT GGCTAGCTACAACGA TCAAGGTT 1821 515 CCUUGAAC A CACACUC 119 TTGAGCT GGCTAGCTACAACGA TCAAGGTT 1821 516 UCAACACA G CUCAAGCA 122 TTGAGCT GGCTAGCTACAACGA TTTCAAGG 1822 517 CCUUGAAC A CACACUC 122 TTGAGCT GGCTAGCTACAACGA TTTGATCTA 1822 518 UCAAGCAC G CUCAAGCA 122 TTGAGCTG GGCTAGCTACAACGA TTTGATCTA 1823 518 UCAAGCAC A CACUGGCU 122 CAGTTTTG GGCTAGCTACAACGA TTTGATCTA 1825 519 AGCAACAC A CUGGCUUC 125 GAGCTACG GACGACACAGA TTGACTTA 1825 510 AGCAACAC A CUGGCUUC 125 GAAGCCAG GGCTAGCTACAACGA TTGACTTA 1827 511 AGCAAACC A CUGGCUUC 125 GAAGCCAG GGCTAGCTACAACGA TTGACTTA 1827 512 CCACACUG G CUUCAACA 126 TTAAGAGA GGCTAGCTACAACGA TTGACTTA 1827 513 ACCUUCAC A CUGGCUUC 125 GAAGCCAG GGCTAGCTACAACGA TTGACTTA 1827 514 CCACACUG A CUGCAAAU 128 TTTAGAGA GGCTAGCTACAACGA AGGTTTGT 1826 515 CAACCAC A CUGGCUUC 125 GAAGCCA GGCTAGCTACAACGA AGGTTTGT 1827 515 CAACCAC A CUGCACUC 125 GAAGCCA GGCTAGCTACAACGA AGGTTTGT 1827 516 CUUCACA A CUCCACUC 127 GAAGCAA GGCTAGCTACAACGA AGGTTTGT 1827 517 CCACACUU A CACCUGCU 128 GAAGCAA GGCTAGCTACAACGA AGCTTTGT 1831 518 CUUCACA A CUCCACUC 128 GAAGCAA GGCTAGCTACAACGA ATCACTAT 1834	475	GGCUGAGC A UAACUAAA	106	TTTAGTTA GGCTAGCTACAACGA GCTCAGCC	1808
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AGUAUCUA G CUGUACCU 132 AGGTACAG GGCTAGCTACAACGA TAGATATT 1834 583 AUCUAGCU G UACCUACU 133 AGTAGGTA GGCTAGCTACAACGA AGGTAGAT 1835 585 CUAGCUGU A CUUCAAAG 135 CTTTGAAG GGCTAGCTACAACGA ACAGCTAG 1836 589 CUGUACCU A CUUCAAAG 135 CTTTGAAG GGCTAGCTACAACGA ACAGCTAG 1837 607 AGAAGGAA A CAGAAUCU 136 AGATTCTG GGCTAGCTACAACGA TCCTTCT 1838 612 GAAACAGA A UCUGCAAU 137 ATTGCAGA GGCTAGCTACAACGA TCCTTTCT 1839 616 CAGAAUCU G CAAUCUAU 138 ATAGATTG GGCTAGCTACAACGA TCTGTTTC 1839 617 ABICUGCA A UCUAUAUA 139 TATATAGA GGCTAGCTACAACGA TGCAGTT 1840 618 AAUCUGCA A UCUAUAUA 140 TAAATATA GGCTAGCTACAACGA AGATTCGA 1842 629 UGCAAUCU A UAUAUUUA 140 TAAATATA GGCTAGCTACAACGA AGATTGCA 1842 625 CAAUCUAU A UAUUUAUU 141 AATAAATA GGCTAGCTACAACGA ATAGATT 1844 631 AUAUAUU A UUUAUUAG 142 CTAATAAA GGCTAGCTACAACGA ATAGATT 1844 631 AUAUAUU A UUAGUGAU 143 ATCACTAA GGCTAGCTACAACGA TAATAGAT 1845 635 AUUUAUUA G UGAUACAG 144 CTGTATCA GGCTAGCTACAACGA TAATAAAT 1846 638 UAUUAGUG A UACAGGUA 145 TACCTGTA GGCTAGCTACAACGA ATCACTAA 1847 640 UUAGUGAU A CAGGUAGA 146 TCTACCTG GGCTAGCTACAACGA ATCACTAA 1848 644 UGAUACAG G UAGACCUU 147 AAGGTCTA GGCTAGCTACAACGA CACTAATA 1848 648 ACAGGUAG A CCUUUCGU 148 ACGAAAGG GGCTAGCTACAACGA CTACCTGT 1850 655 GACCUUUC G UAGAGAUG 149 CATCTCTA GGCTAGCTACAACGA CTACCTGT 1850 661 UCGUAGAG A UGUACAGU 150 ACTGTACA GGCTAGCTACAACGA CTCTACCA 1852 663 GUAGAGAU G UACAGGUA 151 TCACTGTA GGCTAGCTACAACGA ATCACTAC 1852 663 GUAGAGAU G UACAGGUA 151 TCACTGTA GGCTAGCTACAACGA CTCACCTGT 1850					1832
583 AUCUAGCU G UACCUACU 133 AGTAGGTA GGCTAGCTACAACGA AGCTAGAT 1835 585 CUAGCUGU A CCUACUUC 134 GAAGTAGG GGCTAGCTACAACGA ACAGCTAG 1836 589 CUGUACCU A CUUCAAAG 135 CTTTGAAG GGCTAGCTACAACGA AGGTACAG 1837 607 AGAAGGAA A CAGAAUCU 136 AGATTCTG GGCTAGCTACAACGA TCCTGTTTC 1838 612 GAAACAGA A UCUGCAAU 137 ATTGCAGA GGCTAGCTACAACGA TCTGTTTC 1839 616 CAGAAUCU G CAAUCUAU 138 ATAGATTG GGCTACAACGA AGATTCTG 1840 619 AAUCUGCA A UCUAUAUA 139 TATATAGA GGCTAGCTACAACGA AGATTCTG 1841 623 UGCAAUCU A UAUUUUAU 140 TAAATATA GGCTAGCTACAACGA AGATTGCA 1842 625 CAAUCUAU A UAUUUUAUU 141 AATAAATA GGCTAGCTACAACGA ATATAGAT 1843 627 AUCUAUAU A UUAGUGAU 142 CTAATAAA GGCTAGCAACGA ATATAAT 1844 631 AUAUUAUUA 143 ATCACTAA GGCTACAACGA ATATAAT 1845 635 AUUUAUUA GUAGAGGUA 145 TACCTGTA GGCTACAACGA CACATAATA 1846					1833
CUAGCUGU A CCUACCUC 134 GAAGTAGG GGCTAGCTACAACGA ACAGCTAG 1836 589 CUGUACCU A CUUCAAAG 135 CTTTGAAG GGCTAGCTACAACGA AGGTACAG 1837 607 AGAAGGAA A CAGAAUCU 136 AGATTCTG GGCTAGCTACAACGA TTCCTTCT 1838 612 GAAACAGA A UCUGCAAU 137 ATTGCAGA GGCTAGCTACAACGA TTCCTTCT 1839 616 CAGAAUCU G CAAUCUAU 138 ATAGATTG GGCTAGCTACAACGA TCTGTTTC 1840 619 AAUCUGCA A UCUAUAUA 139 TATATAGA GGCTAGCTACAACGA AGATTCTG 1841 623 UGCAAUCU A UAUAUUUA 140 TAAATATA GGCTAGCTACAACGA AGATTGCA 1842 625 CAAUCUAU A UAUUUUUU 141 AATAAATA GGCTAGCTACAACGA ATAGATTG 1843 627 AUCUAUAU A UUUAUUUG 142 CTAATAAA GGCTAGCTACAACGA ATAGATTG 1844 631 AUAUAUUU A UUAGUGAU 143 ATCACTAA GGCTAGCTACAACGA AAATATAT 1845 635 AUUUAUUA G UGAUACAG 144 CTGTATCA GGCTAGCTACAACGA AAATATAT 1846 638 UAUUAUGG A UACAGGUA 145 TACCTGTA GGCTAGCTACAACGA CACTAATA 1847 640 UUAGUGAU A CAGGUAGA 146 TCTACCTG GGCTAGCTACAACGA ATCACTAA 1848 644 UGAUACAG G UAGACCUU 147 AAGGTCTA GGCTAGCTACAACGA CTGATACA 1849 648 ACAGGUAG A CCUUUCGU 148 ACGAAAGG GGCTAGCTACAACGA CTACCTAT 1850 655 GACCUUUC G UAGAGAUG 149 CATCTCTA GGCTAGCTACAACGA CTACCTGT 1850 661 UCGUAGAG A UGUACAGU 150 ACTGTACA GGCTAGCTACAACGA CTCTACGA 1852 663 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA CTCTACGA 1852 663 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA ATCTCTACCA 1853					1834
CUGUACCU A CUUCAAAG 135 CTTTGAAG GGCTAGCTACAACGA AGGTACAG 1837 607 AGAAGGAA A CAGAAUCU 136 AGATTCTG GGCTAGCTACAACGA TTCCTTCT 1838 612 GAAACAGA A UCUGCAAU 137 ATTGCAGA GGCTAGCTACAACGA TCCTTCT 1839 616 CAGAAUCU G CAAUCUAU 138 ATAGATTG GGCTAGCTACAACGA AGATTCTG 1840 619 AAUCUGCA A UCUAUAUA 139 TATATAGA GGCTAGCTACAACGA TGCAGATT 1841 623 UGCAAUCU A UAUAUUUA 140 TAAATATA GGCTAGCTACAACGA AGATTGCA 1842 625 CAAUCUAU A UAUUUAUU 141 AATAAATA GGCTAGCTACAACGA ATAGATTG 1843 627 AUCUAUAU A UUUAUUAG 142 CTAATAAA GGCTAGCTACAACGA ATATAGAT 1844 631 AUAUAUUU A UUAGUGAU 143 ATCACTAA GGCTAGCTACAACGA AAATATAT 1845 635 AUUUAUUA G UGAUACAG 144 CTGTATCA GGCTAGCTACAACGA TAATAAAT 1846 638 UAUUAGUG A UACAGGUA 145 TACCTGTA GGCTAGCTACAACGA ATCACTAA 1847 640 UUAGUGAU A CAGGUAGA 146 TCTACCTG GGCTAGCTACAACGA ATCACTAA 1848 644 UGAUACAG G UAGACCUU 147 AAGGTCTA GGCTAGCTACAACGA CTGTATCA 1849 648 ACAGGUAG A CCUUUCGU 148 ACGAAAGG GGCTAGCTACAACGA CTACTTCA 1849 655 GACCUUUC G UAGAGAUG 149 CATCTCTA GGCTAGCTACAACGA CACCTACTA 1850 661 UCGUAGAG A UGUACAGU 150 ACTGTACA GGCTAGCTACAACGA CTCTACGA 1851 662 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA CTCTACGA 1852 663 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA ATCTCTAC 1853				AGTAGGTA GGCTAGCTACAACGA AGCTAGAT	1835
607 AGAAGGAA A CAGAAUCU 136 AGATTCTG GGCTAGCTACAACGA TTCCTTCT 1838 612 GAAACAGA A UCUGCAAU 137 ATTGCAGA GGCTAGCTACAACGA TCCTTTCT 1839 616 CAGAAUCU G CAAUCUAU 138 ATAGATTG GGCTAGCTACAACGA AGATTCTG 1840 619 AAUCUGCA A UCUAUAUA 139 TATATAGA GGCTAGCTACAACGA TGCAGATT 1841 623 UGCAAUCU A UAUAUUUA 140 TAAATATA GGCTAGCTACAACGA AGATTGCA 1842 625 CAAUCUAU A UAUUUAUU 141 AATAAATA GGCTAGCTACAACGA ATAGATTG 1843 627 AUCUAUAU A UUUAUUAG 142 CTAATAAA GGCTAGCTACAACGA ATATAGAT 1844 631 AUAUAUUU A UUAGUGAU 143 ATCACTAA GGCTAGCTACAACGA AAATATAT 1845 635 AUUUAUUA G UGAUACAG 144 CTGTATCA GGCTAGCTACAACGA TAATAAAT 1846 638 UAUUAGUG A UACAGGUA 145 TACCTGTA GGCTAGCTACAACGA CACTAATA 1847 640 UUAGUGAU A CAGGUAGA 146 TCTACCTG GGCTAGCTACAACGA ATCACTAA 1848 644 UGAUACAG G UAGACCUU 147 AAGGTCTA GGCTAGCTACAACGA CTGTATCA 1849 648 ACAGGUAG A CCUUUCGU 148 ACGAAAGG GGCTAGCTACAACGA CTGTATCA 1850 655 GACCUUUC G UAGAGAUG 149 CATCTCTA GGCTAGCTACAACGA GAAAGGTC 1851 661 UCGUAGAG A UGUACAGU 150 ACTGTACA GGCTAGCTACAACGA CTCTACAG 1852 663 GUAGAGAU G UACAGUAA 151 TCACTGTA GGCTAGCTACAACGA CTCTACAG 1852 663 GUAGAGAU G UACAGGUA 151 TCACTGTA GGCTAGCTACAACGA ATCTCTAC 1853				GAAGTAGG GGCTAGCTACAACGA ACAGCTAG	1836
612 GAAACAGA A UCUGCAAU 137 ATTGCAGA GGCTAGCTACAACGA TCTGTTTC 1839 616 CAGAAUCU G CAAUCUAU 138 ATAGATTG GGCTAGCTACAACGA AGATTCTG 1840 619 AAUCUGCA A UCUAUAUA 139 TATATAGA GGCTAGCTACAACGA TGCAGATT 1841 623 UGCAAUCU A UAUAUUUA 140 TAAATATA GGCTAGCTACAACGA AGATTGCA 1842 625 CAAUCUAU A UAUUUAUU 141 AATAAATA GGCTAGCTACAACGA ATAGATTG 1843 627 AUCUAUAU A UUUAUUAG 142 CTAATAAA GGCTAGCTACAACGA ATATAGAT 1844 631 AUAUAUUU A UUAGUGAU 143 ATCACTAA GGCTAGCTACAACGA AAATATAT 1845 635 AUUUAUUA G UGAUACAG 144 CTGTATCA GGCTAGCTACAACGA TAATAAAT 1846 638 UAUUAGUG A UACAGGUA 145 TACCTGTA GGCTAGCTACAACGA CACTAATA 1847 640 UUAGUGAU A CAGGUAGA 146 TCTACCTG GGCTAGCTACAACGA ATCACTAA 1848 644 UGAUACAG G UAGACCUU 147 AAGGTCTA GGCTAGCTACAACGA CTGTATCA 1849 648 ACAGGUAG A CCUUUCGU 148 ACGAAAGG GGCTAGCTACAACGA CTACCTGT 1850 655 GACCUUUC G UAGAGAUG 149 CATCTCTA GGCTAGCTACAACGA GAAAGGTC 1851 661 UCGUAGAG A UGUACAGU 150 ACTGTACA GGCTAGCTACAACGA CTCTACAG 1852 663 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA ATCTCTAC 1853	589	CUGUACCU A CUUCAAAG	135	CTTTGAAG GGCTAGCTACAACGA AGGTACAG	1837
616 CAGANUCU G CAAUCUAU 138 ATAGATTG GGCTAGCTACAACGA AGATTCTG 1840 619 AAUCUGCA A UCUAUAUA 139 TATATAGA GGCTAGCTACAACGA TGCAGATT 1841 623 UGCAAUCU A UAUAUUUA 140 TAAATATA GGCTAGCTACAACGA AGATTGCA 1842 625 CAAUCUAU A UAUUUAUU 141 AATAAATA GGCTAGCTACAACGA ATAGATTG 1843 627 AUCUAUAU A UUUAUUAG 142 CTAATAAA GGCTAGCTACAACGA ATATAGAT 1844 631 AUAUAUUU A UUAGUGAU 143 ATCACTAA GGCTAGCTACAACGA AAATATAT 1845 635 AUUUAUUA G UGAUACAG 144 CTGTATCA GGCTAGCTACAACGA TAATAAAT 1846 638 UAUUAGUG A UACAGGUA 145 TACCTGTA GGCTAGCTACAACGA CACTAATA 1847 640 UUAGUGAU A CAGGUAGA 146 TCTACCTG GGCTAGCTACAACGA ATCACTAA 1848 644 UGAUACAG G UAGACCUU 147 AAGGTCTA GGCTAGCTACAACGA CTGTATCA 1849 648 ACAGGUAG A CCUUUCGU 148 ACGAAAGG GGCTAGCTACAACGA CTACCTGT 1850 655 GACCUUUC G UAGAGAUG 149 CATCTCTA GGCTAGCTACAACGA GAAAGGTC 1851 661 UCGUAGAG A UGUACAGU 150 ACTGTACA GGCTAGCTACAACGA CTCTACGA 1852 663 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA ATCTCTAC 1853		AGAAGGAA A CAGAAUCU	136	AGATTCTG GGCTAGCTACAACGA TTCCTTCT	1838
619 AAUCUGCA A UCUAUAUA 139 TATATAGA GGCTAGCTACAACGA TGCAGATT 1841 623 UGCAAUCU A UAUAUUUA 140 TAAATATA GGCTAGCTACAACGA AGATTGCA 1842 625 CAAUCUAU A UAUUUAUU 141 AATAAATA GGCTAGCTACAACGA ATAGATTG 1843 627 AUCUAUUAU A UUUAUUAG 142 CTAATAAA GGCTAGCTACAACGA ATATAGAT 1844 631 AUAUAUUU A UUAGUGAU 143 ATCACTAA GGCTAGCTACAACGA AAATATAT 1845 635 AUUUAUUA G UGAUACAG 144 CTGTATCA GGCTAGCTACAACGA TAATAAAT 1846 638 UAUUAGUG A UACAGGUA 145 TACCTGTA GGCTAGCTACAACGA CACTAATA 1847 640 UUAGUGAU A CAGGUAGA 146 TCTACCTG GGCTAGCTACAACGA ATCACTAA 1848 644 UGAUACAG G UAGACCUU 147 AAGGTCTA GGCTAGCTACAACGA CTGTATCA 1849 648 ACAGGUAG A CCUUUCGU 148 ACGAAAGG GGCTAGCTACAACGA CTACCTGT 1850 655 GACCUUUC G UAGAGAUG 149 CATCTCTA GGCTAGCTACAACGA GAAAGGTC 1851 661 UCGUAGAG A UGUACAGU 150 ACTGTACA GGCTAGCTACAACGA CTCTACGA 1852 663 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA ATCTCTAC 1853	612		137	ATTGCAGA GGCTAGCTACAACGA TCTGTTTC	1839
G23 UGCAAUCU A UAUAUUUA 140 TAAATATA GGCTAGCTACAACGA AGATTGCA 1842 G25 CAAUCUAU A UAUUUAUU 141 AATAAATA GGCTAGCTACAACGA ATAGATTG 1843 G27 AUCUAUAU A UUUAUUAG 142 CTAATAAA GGCTAGCTACAACGA ATATAGAT 1844 G31 AUAUAUUU A UUAGUGAU 143 ATCACTAA GGCTAGCTACAACGA AAATATAT 1845 G35 AUUUAUUA G UGAUACAG 144 CTGTATCA GGCTAGCTACAACGA TAATAAAT 1846 G38 UAUUAGUG A UACAGGUA 145 TACCTGTA GGCTAGCTACAACGA CACTAATA 1847 G40 UUAGUGAU A CAGGUAGA 146 TCTACCTG GGCTAGCTACAACGA ATCACTAA 1848 G44 UGAUACAG G UAGACCUU 147 AAGGTCTA GGCTAGCTACAACGA CTGTATCA 1849 G48 ACAGGUAG A CCUUUCGU 148 ACGAAAGG GGCTAGCTACAACGA CTACCTGT 1850 G55 GACCUUUC G UAGAGAUG 149 CATCTCTA GGCTAGCTACAACGA GAAAGGTC 1851 G61 UCGUAGAG A UGUACAGU 150 ACTGTACA GGCTAGCTACAACGA CTCTACGA 1852 G63 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA ATCTCTAC 1853	616	CAGAAUCU G CAAUCUAU	138	·	1840
625 CAAUCUAU A UAUUUAUU 141 AATAAATA GGCTAGCTACAACGA ATAGATTG 1843 627 AUCUAUAU A UUUAUUAG 142 CTAATAAA GGCTAGCTACAACGA ATAGATT 1844 631 AUAUAUUU A UUAGUGAU 143 ATCACTAA GGCTAGCTACAACGA AAATATAT 1845 635 AUUUAUUA G UGAUACAG 144 CTGTATCA GGCTAGCTACAACGA TAATAAAT 1846 638 UAUUAGUG A UACAGGUA 145 TACCTGTA GGCTAGCTACAACGA CACTAATA 1847 640 UUAGUGAU A CAGGUAGA 146 TCTACCTG GGCTAGCTACAACGA ATCACTAA 1848 644 UGAUACAG G UAGACCUU 147 AAGGTCTA GGCTAGCTACAACGA CTGTATCA 1849 648 ACAGGUAG A CCUUUCGU 148 ACGAAAGG GGCTAGCTACAACGA CTACCTGT 1850 655 GACCUUUC G UAGAGAUG 149 CATCTCTA GGCTAGCTACAACGA GAAAGGTC 1851 661 UCGUAGAG A UGUACAGU 150 ACTGTACA GGCTAGCTACAACGA CTCTACGA 1852 663 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA ATCTCTAC 1853			139		
AUCUAUAU A UUUAUUAG 142 CTAATAAA GGCTAGCTACAACGA ATATAGAT 1844 631 AUAUAUUU A UUAGUGAU 143 ATCACTAA GGCTAGCTACAACGA AAATATAT 1845 635 AUUUAUUA G UGAUACAG 144 CTGTATCA GGCTAGCTACAACGA TAATAAAT 1846 638 UAUUAGUG A UACAGGUA 145 TACCTGTA GGCTAGCTACAACGA CACTAATA 1847 640 UUAGUGAU A CAGGUAGA 146 TCTACCTG GGCTAGCTACAACGA ATCACTAA 1848 644 UGAUACAG G UAGACCUU 147 AAGGTCTA GGCTAGCTACAACGA CTGTATCA 1849 648 ACAGGUAG A CCUUUCGU 148 ACGAAAGG GGCTAGCTACAACGA CTACCTGT 1850 655 GACCUUUC G UAGAGAUG 149 CATCTCTA GGCTAGCTACAACGA GAAAGGTC 1851 661 UCGUAGAG A UGUACAGU 150 ACTGTACA GGCTAGCTACAACGA CTCTACGA 1852 663 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA ATCTCTAC 1853		UGCAAUCU A UAUAUUUA	140		
AUAUAUUU A UUAGUGAU 143 ATCACTAA GGCTAGCTACAACGA AAATATAT 1845 635 AUUUAUUA G UGAUACAG 144 CTGTATCA GGCTAGCTACAACGA TAATAAAT 1846 638 UAUUAGUG A UACAGGUA 145 TACCTGTA GGCTAGCTACAACGA CACTAATA 1847 640 UUAGUGAU A CAGGUAGA 146 TCTACCTG GGCTAGCTACAACGA ATCACTAA 1848 644 UGAUACAG G UAGACCUU 147 AAGGTCTA GGCTAGCTACAACGA CTGTATCA 1849 648 ACAGGUAG A CCUUUCGU 148 ACGAAAGG GGCTAGCTACAACGA CTACCTGT 1850 655 GACCUUUC G UAGAGAUG 149 CATCTCTA GGCTAGCTACAACGA GAAAGGTC 1851 661 UCGUAGAG A UGUACAGU 150 ACTGTACA GGCTAGCTACAACGA CTCTACGA 1852 663 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA ATCTCTAC 1853	625	CAAUCUAU A UAUUUAUU	141	AATAAATA GGCTAGCTACAACGA ATAGATTG	1843
AUUUAUUA G UGAUACAG 144 CTGTATCA GGCTAGCTACAACGA TAATAAAT 1846 638 UAUUAGUG A UACAGGUA 145 TACCTGTA GGCTAGCTACAACGA CACTAATA 1847 640 UUAGUGAU A CAGGUAGA 146 TCTACCTG GGCTAGCTACAACGA ATCACTAA 1848 644 UGAUACAG G UAGACCUU 147 AAGGTCTA GGCTAGCTACAACGA CTGTATCA 1849 648 ACAGGUAG A CCUUUCGU 148 ACGAAAGG GGCTAGCTACAACGA CTACCTGT 1850 655 GACCUUUC G UAGAGAUG 149 CATCTCTA GGCTAGCTACAACGA GAAAGGTC 1851 661 UCGUAGAG A UGUACAGU 150 ACTGTACA GGCTAGCTACAACGA CTCTACGA 1852 663 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA ATCTCTAC 1853	627	AUCUAUAU A UUUAUUAG	142	CTAATAAA GGCTAGCTACAACGA ATATAGAT	1844
UUUAGUGAU A CAGGUAGA 145 TACCTGTA GGCTAGCTACAACGA CACTAATA 1847 640 UUAGUGAU A CAGGUAGA 146 TCTACCTG GGCTAGCTACAACGA ATCACTAA 1848 644 UGAUACAG G UAGACCUU 147 AAGGTCTA GGCTAGCTACAACGA CTGTATCA 1849 648 ACAGGUAG A CCUUUCGU 148 ACGAAAGG GGCTAGCTACAACGA CTACCTGT 1850 655 GACCUUUC G UAGAGAUG 149 CATCTCTA GGCTAGCTACAACGA GAAAGGTC 1851 661 UCGUAGAG A UGUACAGU 150 ACTGTACA GGCTAGCTACAACGA CTCTACGA 1852 663 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA ATCTCTAC 1853	631	AUAUAUUU A UUAGUGAU	143	ATCACTAA GGCTAGCTACAACGA AAATATAT	1845
UUAGUGAU A CAGGUAGA 146 TCTACCTG GGCTAGCTACAACGA ATCACTAA 1848 644 UGAUACAG G UAGACCUU 147 AAGGTCTA GGCTAGCTACAACGA CTGTATCA 1849 648 ACAGGUAG A CCUUUCGU 148 ACGAAAGG GGCTAGCTACAACGA CTACCTGT 1850 655 GACCUUUC G UAGAGAUG 149 CATCTCTA GGCTAGCTACAACGA GAAAGGTC 1851 661 UCGUAGAG A UGUACAGU 150 ACTGTACA GGCTAGCTACAACGA CTCTACGA 1852 663 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA ATCTCTAC 1853	635	AUUUAUUA G UGAUACAG	144	CTGTATCA GGCTAGCTACAACGA TAATAAAT	1846
644 UGAUACAG G UAGACCUU 147 AAGGTCTA GGCTAGCTACAACGA CTGTATCA 1849 648 ACAGGUAG A CCUUUCGU 148 ACGAAAGG GGCTAGCTACAACGA CTACCTGT 1850 655 GACCUUUC G UAGAGAUG 149 CATCTCTA GGCTAGCTACAACGA GAAAGGTC 1851 661 UCGUAGAG A UGUACAGU 150 ACTGTACA GGCTAGCTACAACGA CTCTACGA 1852 663 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA ATCTCTAC 1853	638	UAUUAGUG A UACAGGUA	145	TACCTGTA GGCTAGCTACAACGA CACTAATA	1847
648 ACAGGUAG A CCUUUCGU 148 ACGAAAGG GGCTAGCTACAACGA CTACCTGT 1850 655 GACCUUUC G UAGAGAUG 149 CATCTCTA GGCTAGCTACAACGA GAAAGGTC 1851 661 UCGUAGAG A UGUACAGU 150 ACTGTACA GGCTAGCTACAACGA CTCTACGA 1852 663 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA ATCTCTAC 1853	640	UUAGUGAU A CAGGUAGA	146	TCTACCTG GGCTAGCTACAACGA ATCACTAA	1848
655 GACCUUUC G UAGAGAUG 149 CATCTCTA GGCTAGCTACAACGA GAAAGGTC 1851 661 UCGUAGAG A UGUACAGU 150 ACTGTACA GGCTAGCTACAACGA CTCTACGA 1852 663 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA ATCTCTAC 1853	644	UGAUACAG G UAGACCUU	147	AAGGTCTA GGCTAGCTACAACGA CTGTATCA	1849
661 UCGUAGAG A UGUACAGU 150 ACTGTACA GGCTAGCTACAACGA CTCTACGA 1852 663 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA ATCTCTAC 1853	648	ACAGGUAG A CCUUUCGU	148	ACGAAAGG GGCTAGCTACAACGA CTACCTGT	1850
663 GUAGAGAU G UACAGUGA 151 TCACTGTA GGCTAGCTACAACGA ATCTCTAC 1853	655	GACCUUUC G UAGAGAUG	149	CATCTCTA GGCTAGCTACAACGA GAAAGGTC	1851
	661	UCGUAGAG A UGUACAGU	150	ACTGTACA GGCTAGCTACAACGA CTCTACGA	1852
665 AGAGAUGU A CAGUGAAA 152 TTTCACTG GGCTAGCTACAACGA ACATCTCT 1854	663	GUAGAGAU G UACAGUGA	151	TCACTGTA GGCTAGCTACAACGA ATCTCTAC	1853
	665	AGAGAUGU A CAGUGAAA	152	TTTCACTG GGCTAGCTACAACGA ACATCTCT	1854

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668	GAUGUACA G UGAAAUCC	153		1855
673	ACAGUGAA A UCCCCGAA	154	TTCGGGGA GGCTAGCTACAACGA TTCACTGT	1856
682	UCCCCGAA A UUAUACAC	155	GTGTATAA GGCTAGCTACAACGA TTCGGGGA	1857
685	CCGAAAUU A UACACAUG	156	CATGTGTA GGCTAGCTACAACGA AATTTCGG	1858
687	GAAAUUAU A CACAUGAC	157	GTCATGTG GGCTAGCTACAACGA ATAATTTC	1859
689	AAUUAUAC A CAUGACUG	158	CAGTCATG GGCTAGCTACAACGA GTATAATT	1860
691	UUAUACAC A UGACUGAA	159	TTCAGTCA GGCTAGCTACAACGA GTGTATAA	1861
694	UACACAUG A CUGAAGGA	160	TCCTTCAG GGCTAGCTACAACGA CATGTGTA	1862
708	GGAAGGGA G CUCGUCAU	161	ATGACGAG GGCTAGCTACAACGA TCCCTTCC	1863
712	GGGAGCUC G UCADUCCG	162	GGGAATGA GGCTAGCTACAACGA GAGCTCCC	1864
715	AGCUCGUC A UUCCCUGC	163	GCAGGGAA GGCTAGCTACAACGA GACGAGCT	1865
722	CAUUCCCU G CCGGGUUA	164	TAACCCGG GGCTAGCTACAACGA AGGGAATG	1866
727	CCUGCCGG G UUACGUCA	165	TGACGTAA GGCTAGCTACAACGA CCGGCAGG	1867
730	GCCGGGUU A CGUCACCU	166	AGGTGACG GGCTAGCTACAACGA AACCCGGC	1868
732	CGGGUUAC G UCACCUAA	167	TTAGGTGA GGCTAGCTACAACGA GTAACCCG	1869
735	GUUACGUC A CCUAACAU	168	ATGTTAGG GGCTAGCTACACGA GACGTAAC	1870
740	GUCACCUA A CAUCACUG	169	CAGTGATG GGCTAGCTACAACGA TAGGTGAC	1871
742	CACCUAAC A UCACUGUU	170	AACAGTGA GGCTAGCTACAACGA GTTAGGTG	1872
745	CUAACAUC A CUGUUACU	171	AGTAACAG GGCTAGCTACAACGA GATGTTAG	1873
748	ACAUCACU G UUACUUUA	172	TAAAGTAA GGCTAGCTACAACGA AGTGATGT	1874
751	UCACUGUU A CUUUAAAA	173	TTTTAAAG GGCTAGCTACAACGA AACAGTGA	1875
762	UUAAAAA G UUUCCACU	174	AGTGGAAA GGCTAGCTACAACGA TTTTTTAA	1876
768	AAGUUUCC A CUUGACAC	175	GTGTCAAG GGCTAGCTACAACGA GGAAACTT	1877
773	UCCACUUG A CACUUUGA	176	TCAAAGTG GGCTAGCTACAACGA CAAGTGGA	1878
775	CACUUGAC A CUUUGAUC	177	GATCAAAG GGCTAGCTACAACGA GTCAAGTG	1879
781	ACACUUUG A UCCCUGAU	178	ATCAGGGA GGCTAGCTACAACGA CAAAGTGT	1880
788	GAUCCCUG A UGGAAAAC	179	GTTTTCCA GGCTAGCTACAACGA CAGGGATC	1881
795	GAUGGAAA A CGCAUAAU	180	ATTATGCG GGCTAGCTACAACGA TTTCCATC	1882
797	UGGAAAAC G CAUAAUCU	181	AGATTATG GGCTAGCTACAACGA GTTTTCCA	1883
799	GAAAACGC A UAAUCUGG	182	CCAGATTA GGCTAGCTACAACGA GCGTTTTC	1884
802	AACGCAUA A UCUGGGAC	183	GTCCCAGA GGCTAGCTACAACGA TATGCGTT	1885
809	AAUCUGGG A CAGUAGAA	184	TTCTACTG GGCTAGCTACAACGA CCCAGATT	1886
812	CUGGGACA G UAGAAAGG	185	CCTTTCTA GGCTAGCTACAACGA TGTCCCAG	1887
821	UAGAAAGG G CUUCAUCA	186	TGATGAAG GGCTAGCTACAACGA CCTTTCTA	1888
826	AGGGCUUC A UCAUAUCA	187	TGATATGA GGCTAGCTACAACGA GAAGCCCT	1889
829	GCUUCAUC A UAUCAAAU	188	ATTTGATA GGCTAGCTACAACGA GATGAAGC	1890
831	UUCAUCAU A UCAAAUGC	189	GCATTTGA GGCTAGCTACAACGA ATGATGAA	1891
836	CAUAUCAA A UGCAACGU	190	ACGTTGCA GGCTAGCTACAACGA TTGATATG	1892
838	UAUCAAAU G CAACGUAC	191	GTACGITG GGCTAGCTACAACGA ATTIGATA	1893
841	CAAAUGCA A CGUACAAA	192	TTTGTACG GGCTAGCTACAACGA TGCATTTG	1894
843	AAUGCAAC G UACAAAGA	193	TCTTTGTA GGCTAGCTACAACGA GTTGCATT	1895
845	UGCAACGU A CAAAGAAA	194	TTTCTTTG GGCTAGCTACAACGA ACGTTGCA	1896
853	ACAAAGAA A UAGGGCUU	195	AAGCCCTA GGCTAGCTACAACGA TTCTTTGT	1897
858	GAAAUAGG G CUUCUGAC	196	GTCAGAAG GGCTAGCTACAACGA CCTATTTC	
865	GGCUUCUG A CCUGUGAA	197	TTCACAGG GGCTAGCTACAACGA CAGAAGCC	
869	UCUGACCU G UGAAGCAA	198	TTGCTTCA GGCTAGCTACAACGA AGGTCAGA	1900
874	CCUGUGAA G CAACAGUC	199	GACTGTTG GGCTAGCTACAACGA TTCACAGG	1901
877	GUGAAGCA A CAGUCAAU	200	ATTGACTG GGCTAGCTACAACGA TGCTTCAC	1902
880	AAGCAACA G UCAAUGGG	201	CCCATTGA GGCTAGCTACAACGA TGTTGCTT	
884	AACAGUCA A UGGGCAUU	202	AATGCCCA GGCTAGCTACAACGA TGACTGTT	1904
888	GUCAAUGG G CAUUUGUA	203	TACAAATG GGCTAGCTACAACGA CCATTGAC	
890	CAAUGGGC A UUUGUAUA	204	TATACAAA GGCTAGCTACAACGA GCCCATTG	
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894	GGGCAUUU G UAUAAGAC	205	GTCTTATA GGCTAGCTACAACGA AAATGCCC	1907
896	GCAUUUGU A UAAGACAA	206	TTGTCTTA GGCTAGCTACAACGA ACAAATGC	1908
901	UGUAUAAG A CAAACUAU	207	ATAGTTTG GGCTAGCTACAACGA CTTATACA	1909
905	UAAGACAA A CUAUCUCA	208	TGAGATAG GGCTAGCTACAACGA TTGTCTTA	1910
908	GACAAACU A UCUCACAC	209	GTGTGAGA GGCTAGCTACAACGA AGTTTGTC	1911
913	ACUAUCUC A CACAUCGA	210	TCGATGTG GGCTAGCTACAACGA GAGATAGT	1912
915	UAUCUCAC A CAUCGACA	211	TGTCGATG GGCTAGCTACAACGA GTGAGATA	1913
917	UCUCACAC A UCGACAAA	212	TTTGTCGA GGCTAGCTACAACGA GTGTGAGA	1914
921	ACACAUCG A CAAACCAA	213	TTGGTTTG GGCTAGCTACAACGA CGATGTGT	1915
925	AUCGACAA A CCAAUACA	214	TGTATTGG GGCTAGCTACAACGA TTGTCGAT	1916
929	ACAAACCA A UACAAUCA	215	TGATTGTA GGCTAGCTACAACGA TGGTTTGT	1917
931	AAACCAAU A CAAUCAUA	216	TATGATTG GGCTAGCTACAACGA ATTGGTTT	1918
934	CCAAUACA A UCAUAGAU	217	ATCTATGA GGCTAGCTACAACGA TGTATTGG	1919
937	AUACAAUC A UAGAUGUC	218	GACATCTA GGCTAGCTACAACGA GATTGTAT	1920
941	AAUCAUAG A UGUCCAAA	219	TTTGGACA GGCTAGCTACAACGA CTATGATT	1921
943	UCAUAGAU G UCCAAAUA	220	TATTTGGA GGCTAGCTACAACGA ATCTATGA	1922
949	AUGUCCAA A UAAGCACA	221	TGTGCTTA GGCTAGCTACAACGA TTGGACAT	1923
953	CCAAAUAA G CACACCAC	222	GTGGTGTG GGCTAGCTACAACGA TTATTTGG	1924
955	AAAUAAGC A CACCACGC	223	GCGTGGTG GGCTAGCTACAACGA GCTTATTT	1925
957	AUAAGCAC A CCACGCCC	224	GGGCGTGG GGCTAGCTACAACGA GTGCTTAT	1926
960	AGCACACC A CGCCCAGU	225	ACTGGGCG GGCTAGCTACAACGA GGTGTGCT	1927
962	CACACCAC G CCCAGUCA	226	TGACTGGG GGCTAGCTACAACGA GTGGTGTG	1928
967	CACGCCCA G UCAAAUUA	227	TAATTTGA GGCTAGCTACAACGA TGGGCGTG	1929
972	CCAGUCAA A UUACUUAG	228	CTAAGTAA GGCTAGCTACAACGA TTGACTGG	1930
975	GUCAAAUU A CUUAGAGG	229	CCTCTAAG GGCTAGCTACAACGA AATTTGAC	1931
983	ACUUAGAG G CCAUACUC	230	GAGTATGG GGCTAGCTACAACGA CTCTAAGT	1932
986	UAGAGGCC A UACUCUUG	231	CAAGAGTA GGCTAGCTACAACGA GGCCTCTA	1933
988	GAGGCCAU A CUCUUGUC	232	GACAAGAG GGCTAGCTACAACGA ATGGCCTC	1934
994	AUACUCUU G UCCUCAAU	233	ATTGAGGA GGCTAGCTACAACGA AAGAGTAT	1935
1001	UGUCCUCA A UUGUACUG	234	CAGTACAA GGCTAGCTACAACGA TGAGGACA	1936
1004	CCUCAAUU G UACUGCUA	235	TAGCAGTA GGCTAGCTACAACGA AATTGAGG	1937
1006	UCAAUUGU A CUGCUACC	236	GGTAGCAG GGCTAGCTACAACGA ACAATTGA	1938
1009	AUUGUACU G CUACCACU	237	AGTGGTAG GGCTAGCTACAACGA AGTACAAT	1939
1012	GUACUGCU A CCACUCCC	238	GGGAGTGG GGCTAGCTACAACGA AGCAGTAC	1940
1015	CUGCUACC A CUCCCUUG	239	CAAGGGAG GGCTAGCTACAACGA GGTAGCAG	1941
1025	UCCCUUGA A CACGAGAG	240	CTCTCGTG GGCTAGCTACAACGA TCAAGGGA	1942
1027	CCUUGAAC A CGAGAGUU	241	AACTCTCG GGCTAGCTACAACGA GTTCAAGG	1943
1033	ACACGAGA G UUCAAAUG	242	CATTIGAA GGCTAGCTACAACGA TCTCGTGT	1944
1039	GAGUUCAA A UGACCUGG	243	CCAGGTCA GGCTAGCTACAACGA TTGAACTC	1945
1042	UUCAAAUG A CCUGGAGU	244	ACTCCAGG GGCTAGCTACAACGA CATTTGAA	
1049	GACCUGGA G UUACCCUG	245	CAGGGTAA GGCTAGCTACAACGA TCCAGGTC	
1052	CUGGAGUU A CCCUGAUG	246	CATCAGGG GGCTAGCTACAACGA AACTCCAG	
1058	UUACCCUG A UGAAAAA	247	TTTTTCA GGCTAGCTACAACGA CAGGGTAA	
1067	UGAAAAAA A UAAGAGAG	248	CTCTCTTA GGCTAGCTACAACGA TTTTTTCA	
1075	AUAAGAGA G CUUCCGUA	249	TACGGAAG GGCTAGCTACAACGA TCTCTTAT	1951
1081	GAGCUUCC G UAAGGCGA	250	TCGCCTTA GGCTAGCTACAACGA GGAAGCTC	1952
1086	UCCGUAAG G CGACGAAU	251	ATTCGTCG GGCTAGCTACAACGA CTTACGGA	1953
1089	GUAAGGCG A CGAAUUGA	252	TCAATTCG GGCTAGCTACAACGA CGCCTTAC	1954
1093	GGCGACGA A UUGACCAA	253	TTGGTCAA GGCTAGCTACAACGA TCGTCGCC	1955
1097	ACGAAUUG A CCAAAGCA	254	TGCTTTGG GGCTAGCTACAACGA CAATTCGT	
1103	UGACCAAA G CAAUUCCC	255	GGGAATTG GGCTAGCTACAACGA CAATTCGT	1956
1105	CCAAAGCA A UUCCCAUG	256		1957
1100	COMMISSION A COCCURAGE	230	CATGGGAA GGCTAGCTACAACGA TGCTTTGG	1958

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1112	CAAUUCCC A UGCCAACA	257	TGTTGGCA GGCTAGCTACAACGA GGGAATTG	1959
1114	AUUCCCAU G CCAACAUA	258	TATGTTGG GGCTAGCTACAACGA ATGGGAAT	1960
1118	CCAUGCCA A CAUAUUCU	259	AGAATATG GGCTAGCTACAACGA TGGCATGG	1961
1120	AUGCCAAC A UAUUCUAC	260	GTAGAATA GGCTAGCTACAACGA GTTGGCAT	1962
1122	GCCAACAU A UUCUACAG	261	CTGTAGAA GGCTAGCTACAACGA ATGTTGGC	1963
1127	CAUAUUCU A CAGUGUUC	262	GAACACTG GGCTAGCTACAACGA AGAATATG	1964
1130	AUUCUACA G UGUUCUUA	263	TAAGAACA GGCTAGCTACAACGA TGTAGAAT	1965
1132	UCUACAGU G UUCUUACU	264	AGTAAGAA GGCTAGCTACAACGA ACTGTAGA	1966
1138	GUGUUCUU A CUAUUGAC	265	GTCAATAG GGCTAGCTACAACGA AAGAACAC	1967
1141	UUCUUACU A UUGACAAA	266	TTTGTCAA GGCTAGCTACAACGA AGTAAGAA	1968
1145	UACUADUG A CAAAAUGC	267	GCATTITG GGCTAGCTACAACGA CAATAGTA	1969
1150	UUGACAAA A UGCAGAAC	268	GTTCTGCA GGCTAGCTACAACGA TTTGTCAA	1970
1152	GACAAAAU G CAGAACAA	269	TTGTTCTG GGCTAGCTACAACGA ATTTTGTC	
1157	AAUGCAGA A CAAAGACA	270		1971
1163	GAACAAAG A CAAAGGAC		TGTCTTTG GGCTAGCTACAACGA TCTGCATT	1972
1170		271	GTCCTTTG GGCTAGCTACAACGA CTTTGTTC	1973
	GACAAAGG A CUUUAUAC	272	GTATAAAG GGCTAGCTACAACGA CCTTTGTC	1974
1175	AGGACUUU A UACUUGUC	273	GACAAGTA GGCTAGCTACAACGA AAAGTCCT	1975
1177	GACUUUAU A CUUGUCGU	274	ACGACAAG GGCTAGCTACAACGA ATAAAGTC	1976
1181	UUAUACUU G UCGUGUAA	275	TTACACGA GGCTAGCTACAACGA AAGTATAA	1977
1184	UACUUGUC G UGUAAGGA	276	TCCTTACA GGCTAGCTACAACGA GACAAGTA	1978
1186	CUUGUCGU G UAAGGAGU	277	ACTCCTTA GGCTAGCTACAACGA ACGACAAG	1979
1193	UGUAAGGA G UGGACCAU	278	ATGGTCCA GGCTAGCTACAACGA TCCTTACA	1980
1197	AGGAGUGG A CCAUCAUU	279	AATGATGG GGCTAGCTACAACGA CCACTCCT	1981
1200	AGUGGACC A UCAUUCAA	280	TTGAATGA GGCTAGCTACAACGA GGTCCACT	1982
1203	GGACCAUC A UUCAAAUC	281	GATTTGAA GGCTAGCTACAACGA GATGGTCC	1983
1209	UCAUUCAA A UCUGUUAA	282	TTAACAGA GGCTAGCTACAACGA TTGAATGA	1984
1213	UCAAAUCU G UUAACACC	283	GGTGTTAA GGCTAGCTACAACGA AGATTTGA	1985
1217	AUCUGUUA A CACCUCAG	284	CTGAGGTG GGCTAGCTACAACGA TAACAGAT	1986
1219	CUGUUAAC A CCUCAGUG	285	CACTGAGG GGCTAGCTACAACGA GTTAACAG	1987
1225	ACACCUCA G UGCAUAUA	286	TATATGCA GGCTAGCTACAACGA TGAGGTGT	1988
1227	ACCUCAGU G CAUAUAUA	287	TATATATG GGCTAGCTACAACGA ACTGAGGT	1989
1229	CUCAGUGC A UAUAUAUG	288	CATATATA GGCTAGCTACAACGA GCACTGAG	1990
1231	CAGUGCAU A UAUAUGAU	289	ATCATATA GGCTAGCTACAACGA ATGCACTG	1991
1233	GUGCAUAU A UAUGAUAA	290	TTATCATA GGCTAGCTACAACGA ATATGCAC	1992
1235	GCAUAUAU A UGAUAAAG	291	CTTTATCA GGCTAGCTACAACGA ATATATGC	1993
1238	UAUAUAUG A UAAAGCAU	292	ATGCTTTA GGCTAGCTACAACGA CATATATA	1994
1243	AUGAUAAA G CAUUCAUC	293	GATGAATG GGCTAGCTACAACGA TTTATCAT	1995
1245	GAUAAAGC A UUCAUCAC	294	GTGATGAA GGCTAGCTACAACGA GCTTTATC	1996
1249	AAGCADUC A UCACUGUG	295	CACAGTGA GGCTAGCTACAACGA GAATGCTT	1997
1252	CAUUCAUC A CUGUGAAA	296	TTTCACAG GGCTAGCTACAACGA GATGAATG	1998
1255	UCAUCACU G UGAAACAU	297	ATGITTCA GGCTAGCTACAACGA AGTGATGA	1999
1260	ACUGUGAA A CAUCGAAA	298	TTTCGATG GGCTAGCTACAACGA TTCACAGT	2000
1262	UGUGAAAC A UCGAAAAC	299	GTTTTCGA GGCTAGCTACAACGA GTTTCACA	2001
1269	CAUCGAAA A CAGCAGGU	300	ACCTGCTG GGCTAGCTACAACGA TTTCGATG	2002
1272	CGAAAACA G CAGGUGCU	301	AGCACCTG GGCTAGCTACAACGA TGTTTTCG	2003
1276	AACAGCAG G UGCUUGAA	302	TTCAAGCA GGCTAGCTACAACGA CTGCTGTT	2004
1278	CAGCAGGU G CUUGAAAC	303	GTTTCAAG GGCTAGCTACAACGA ACCTGCTG	2005
1285	UGCUUGAA A CCGUAGCU	304	AGCTACGG GGCTAGCTACAACGA TTCAAGCA	2006
1288	UUGAAACC G WAGCUGGC	305	GCCAGCTA GGCTACCAACGA GGTTTCAA	
1291	AAACCGUA G CUGGCAAG	306	CTTGCCAG GGCTAGCTACAACGA TACGGTTT	2007
1295	CGUAGCUG G CAAGCGGU	307	ACCECTTE GECTAGCTACAACGA CAGCTACE	2008
1299	GCUGGCAA G CGGUCUUA			2009
1077	COOGCAR O COGOCOUA	308	TAAGACCG GGCTAGCTACAACGA TTGCCAGC	2010

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1302	GGCAAGCG G UCUUACCG	309	CGGTAAGA GGCTAGCTACAACGA CGCTTGCC	2011
1307	GCGGUCUU A CCGGCUCU	310	AGAGCCGG GGCTAGCTACAACGA AAGACCGC	2012
1311	UCUUACCG G CUCUCUAU	311	ATAGAGAG GGCTAGCTACAACGA CGGTAAGA	2013
1318	GGCUCUCU A UGAAAGUG	312	CACTITCA GGCTAGCTACAACGA AGAGAGCC	2014
1324	CUAUGAAA G UGAAGGCA	313	TGCCTTCA GGCTAGCTACAACGA TTTCATAG	2015
1330	AAGUGAAG G CAUUUCCC	314	GGGAAATG GGCTAGCTACAACGA CTTCACTT	2016
1332	GUGAAGGC A UUUCCCUC	315	GAGGGAAA GGCTAGCTACAACGA GCCTTCAC	2017
1341	UUUCCCUC G CCGGAAGU	316	ACTTCCGG GGCTAGCTACAACGA GAGGGAAA	2018
1348	CGCCGGAA G UUGUAUGG	317	CCATACAA GGCTAGCTACAACGA TTCCGGCG	2019
1351	CGGAAGUU G UAUGGUUA	318	TAACCATA GGCTAGCTACAACGA AACTTCCG	2020
1353	GAAGUUGU A UGGUUAAA	319	TTTAACCA GGCTAGCTACAACGA ACAACTTC	2021
1356	GUUGUAUG G UUAAAAGA	320	TCTTTTAA GGCTAGCTACAACGA CATACAAC	2022
1364	GUUAAAAG A UGGGUUAC	321	GTAACCCA GGCTAGCTACAACGA CTTTTAAC	2023
1368	AAAGAUGG G UUACCUGC	322	GCAGGTAA GGCTAGCTACAACGA CCATCTTT	2024
1371	. GAUGGGUU A CCUGCGAC	323	GTCGCAGG GGCTAGCTACAACGA AACCCATC	2025
1375	GGUUACCU G CGACUGAG	324	CTCAGTCG GGCTAGCTACAACGA AGGTAACC	2026
1378	UACCUGCG A CUGAGAAA	325	TTTCTCAG GGCTAGCTACAACGA CGCAGGTA	2027
1386	ACUĠAGAA A UCUGCUCG	326	CGAGCAGA GGCTAGCTACAACGA TTCTCAGT	2028
1390	AGAAAUCU G CUCGCUAU	327	ATAGCGAG GGCTAGCTACAACGA AGATTTCT	2029
1394	AUCUGCUC G CUAUUUGA	328	TCAAATAG GGCTAGCTACAACGA GAGCAGAT	2030
1397	UGCUCGCU A UUUGACUC	329	GAGTCAAA GGCTAGCTACAACGA AGCGAGCA	2031
1402	GCUAUUUG A CUCGUGGC	330	GCCACGAG GGCTAGCTACAACGA CAAATAGC	2032
1406	UUUGACUC G UGGCUACU	331	AGTAGCCA GGCTAGCTACAACGA GAGTCAAA	2033
1409	GACUCGUG G CUACUCGU	332	ACGAGTAG GGCTAGCTACAACGA CACGAGTC	2034
1412	UCGUGGCU A CUCGUUAA	333	TTAACGAG GGCTAGCTACAACGA AGCCACGA	2035
1416	GGCUACUC G UUAAUUAU	334	ATAATTAA GGCTAGCTACAACGA GAGTAGCC	2036
1420	ACUCGUUA A UUAUCAAG	335	CTTGATAA GGCTAGCTACAACGA TAACGAGT	2037
1423	CGUUAAUU A UCAAGGAC	336	GTCCTTGA GGCTAGCTACAACGA AATTAACG	2038
1430	UAUCAAGG A CGUAACUG	337	CAGTTACG GGCTAGCTACAACGA CCTTGATA	2039
1432	UCAAGGAC G UAACUGAA	338	TTCAGTTA GGCTAGCTACAACGA GTCCTTGA	2040
1435	AGGACGUA A CUGAAGAG	339	CTCTTCAG GGCTAGCTACAACGA TACGTCCT	2041
1445	UGAAGAGG A UGCAGGGA	340	TCCCTGCA GGCTAGCTACAACGA CCTCTTCA	2042
1447	AAGAGGAU G CAGGGAAU	341	ATTCCCTG GGCTAGCTACAACGA ATCCTCTT	2043
1454	UGCAGGGA A UUAUACAA	342	TTGTATAA GGCTAGCTACAACGA TCCCTGCA	2044
1457	AGGGAAUU A UACAAUCU	343	AGATTGTA GGCTAGCTACAACGA AATTCCCT	2045
1459	GGAAUUAU A CAAUCUUG	344	CAAGATTG GGCTAGCTACAACGA ATAATTCC	2046
1462	AUUAUACA A UCUUGCUG	345	CAGCAAGA GGCTAGCTACAACGA TGTATAAT	2047
1467	ACAAUCUU G CUGAGCAU	346	ATGCTCAG GGCTAGCTACAACGA AAGATTGT	2048
1472	CUUGCUGA G CAUAAAAC	347	GTTTTATG GGCTAGCTACAACGA TCAGCAAG	2049
1474	UGCUGAGC A UAAAACAG	348	CTGTTTTA GGCTAGCTACAACGA GCTCAGCA	2050
1479	AGCAUAAA A CAGUCAAA	349	TTTGACTG GGCTAGCTACAACGA TTTATGCT	2051
1482	AUAAAACA G UCAAAUGU	350	ACATTTGA GGCTAGCTACAACGA TGTTTTAT	2052
1487	ACAGUCAA A UGUGUUUA	351	TAAACACA GGCTAGCTACAACGA TTGACTGT	2053
1489	AGUCAAAU G UGUUUAAA	352	TTTAAACA GGCTAGCTACAACGA ATTTGACT	2054
1491	UCAAAUGU G UUUAAAAA	353	TTTTTAAA GGCTAGCTACAACGA ACATTTGA	2055
1499	GUUUAAAA A CCUCACUG	354	CAGTGAGG GGCTAGCTACAACGA TTTTAAAC	2056
1504	AAAACCUC A CUGCCACU	355		2057
1507	ACCUCACU G CCACUCUA	356	TAGAGTGG GGCTAGCTACAACGA AGTGAGGT	2058
1510	UCACUGCC A CUCUAAUU	357	AATTAGAG GGCTAGCTACAACGA GGCAGTGA	2059
1516	CCACUCUA A UUGUCAAU	358	ATTGACAA GGCTAGCTACAACGA TAGAGTGG	2060
1519	CUCUAAUU G UCAAUGUG	359	CACATTGA GGCTAGCTACAACGA AATTAGAG	2061
1523	AAUUGUCA A UGUGAAAC	360	GTTTCACA GGCTAGCTACAACGA TGACAATT	2062

1525 UUGUCARI G UGARACCC 361 GGGTTACCTACARACGA ATTGACAR 2063 1530 ANUGUGAR A CCCCAGAU 362 ATCGGGG GCTAGCTACAACGA TTCACATT 2064 1541 CCAGAUUU A CGARAAGG 364 CCTTTTCG GGCTAGCTACAACGA CTGGGGTT 2065 1549 ACGARAAG G CCGUGUCA 365 TGACACGG GGCTAGCTACAACGA CTTTTCGT 2067 1552 ARAGGCCG UGUCAUCG 365 TGACACGG GGCTAGCTACAACGA CTTTTCGT 2067 1552 ARAGGCCGU G UCAUCGUU 367 ARCGATAG GGCTAGCTACAACGA CTTTTCGT 2068 1554 ARGGCCGU G UCAUCGUU 367 ARCGATAG GGCTACCTACAACGA GGCCTTT 2068 1554 ARGGCCGU G UCAUCGUU 367 ARCGATAG GGCTACCTACAACGA GACACGCT 2069 1557 GCCGUGUC A UCGUUUCCC 368 GGARACGA GGCTACCTACAACGA GACACGCC 2070 1560 GUGUCAUG G UCUCCACA 369 TCTGGARAA GGCTACCTACAACGA GACACGC 2071 1568 GUUUCCAGA 369 TCTGGARAA GGCTACCTACAACGA CAGACCG CUCUCUAC 371 GTRAGAGAG GGCTAGCTACAACGA CTGGARAC 2071 1573 CAGACCGG G CUCUCUAC 371 GTRAGAGAG GGCTAGCTACAACGA CTGGARAC 2073 1580 GGCUCUCU A CCCACUGG 372 CCACTGGG GGCTAGCTACAACGA CAGAGCT 2073 1584 CUCUACCC A CUGGGCAG 373 CTGCCCAG GGCTAGCTACAACGA CAGAGAC 2074 1584 CUCUACCC A CUGGGCAG 374 GTCTGCTG GGCTAGCTACAACGA CAGTGAGA 2075 1592 ACUGGGCA G CAGACAGA 375 TTTGTCTG GGCTAGCTACAACGA CAGTGGG 2076 1592 ACUGGGCA G CAGACAGA 375 TTTGTCTG GGCTAGCTACAACGA CAGTGGG 2076 1592 ACUGGGCA G CAGACAGA 376 AGGATTT G GGCTAGCTACAACGA CAGTGGT 2077 1596 GGCAGACA A UCCUGACU 377 AGCAGGG GGCTAGCTACAACGA CAGTGTC 2076 1600 GCAGACAA A UCCUGACU 377 AGCAGGG GGCTAGCTACAACGA CAGTGTC 2076 1600 GCAGACAA A UCCUGACU 378 AGGATTT GGCTAGCTACAACGA CAGGATT 2080 1610 CCUGACU G UACCGCAU 380 ATATCGCT GGCTAGCTACAACGA ACAGTTC 2081 1612 UGAUCUCC A CAULUGGU 381 ACCATATG GGCTAGCTACAACGA ACAGTTC 2081 1612 UGAUCUC G CAULUGGU 381 ACCATATG GGCTAGCTACAACGA ACAGTTC 2081 1612 UGAUCUC A CAULUGGU 381 ACCATATG GGCTAGCTACAACGA ACAGTCA 2081 1612 UGAUCUC A CAULUGGU 381 ACCATATG GGCTAGCTACAACGA ACAGTCA 2081			, -	,	
1537 AACCCCAG A UUUACGAA 363 TTOGTAAA GGCTAGCTACAACGA CTGGGGTT 2065 1541 CCAGADUU A CGAAAAGG 364 CCTTTTCG GGCTAGCTACAACGA AAATCTGG 2066 1549 ACGAAAAG G CCGUGUCA 365 TGACACGG GGCTAGCTACAACGA CTTTTCGT 2067 1552 AAAAGGCC G UGUCAUCG 366 CQATGACA GGCTAGCTACAACGA ACGCCTTT 2068 1554 AAGGCCGU G UCAUCGUU 367 AACGATGA GGCTAGCTACAACGA ACGGCCTT 2069 1557 GCCGUGUC A UCGUUUCC 368 GGAAACGA GGCTAGCTACAACGA GACACGG 2070 1560 GUGUCAUC G UUUCCAGA 369 TCTGGAAA GGCTAGCTACAACGA GACACGG 2071 1560 GUUUCCAG A CCCGGGUC 370 GAGCCGGG GGCTAGCTACAACGA GATGACAC 2071 1573 CAGACCCG G CUCUUAC 371 GTAGAAGG GGCTAGCTACAACGA CGGGGTCT 2073 1580 GGCUCUCU A CCCACUGG 372 CTGCCAG GGCTAGCTACAACGA AGAGAGC 2074 1584 CUCUACCC A CUGGGCAG 373 CTGCCCAG GGCTAGCTACAACGA AGAGAGC 2075 1592 ACUGGGCA G CAGACAAA 375 TTTGTCTG GGCTAGCTACAACGA AGAGAGC 2076 1592 ACUGGGCA G CAGACAAA 375 TTTGTCTG GGCTAGCTACAACGA CAGTGGG 2076 1594 ACUGGACA A UCCUGACU 376 AGGATTAG GGCTAGCTACAACGA CTGCTGCC 2078 1600 GCAGACAA A UCCUGACU 377 AGTCAGG GGCTAGCTACAACGA CTGCTGCC 2078 1610 GCAGACAA A UCCUGACU 377 AGTCAGG GGCTAGCTACAACGA CTGCTTGCC 2078 1610 GCAGACAA A UCCUGACU 378 AGGATACAA GGCTAGCTACAACGA CTGCTTGCC 2078 1610 GCAGACAA A UCCUGACU 379 ATGCGGT GGCTAGCTACAACGA ACAGATCA 2081 1611 UGUACCGC A UUUGACC 380 ATTATCGG GGCTAGCTACAACGA ACAGATCA 2081 1612 UGACUUGU A CCCAUAUU 380 ATTATCGG GGCTAGCTACAACGA ACAGATCA 2081 1615 CUUGUACC AUAGGUAU 381 ACCATATG GGCTAGCTACAACGA ACAGATCA 2081 1616 UGUCCCC A UAUGGUAU 381 ACCATATG GGCTAGCTACAACGA ACAAGTCA 2081 1617 UGUACCGC A UAUGGUAU 381 ACCATATG GGCTAGCTACAACGA ACAAGTCA 2081 1618 UACCCCAA A UCCAGAG 381 ACCATATG GGCTAGCTACAACGA ACAAGTCA 2081 1619 UACCCCAA A UCCAGAG 381 ACCATATG GGCTAGCTACAACGA ACCATATG 2081 1624 CUUUUGAC A CCAUAAUC 384 GAGGGGTAG GGCTAGCTACA		UUGUCAAU G UGAAACCC			2063
1541 CCAGADUU A CGAAAAGG 364 CCTTTTCG GGCTAGCTACAACGA AAATCTGG 2066 1549 ACGAAAAG G CCGUGUCA 365 TGACACGG GGCTAGCTACAACGA CTTTTCGT 2067 1552 AAAAGGCC G UGUCAUCG 366 CGATGAC GGCTAGCTACAACGA CGCTTTT 2068 1554 AAGGCCGU G UCAUCGUU 367 AACGATGA GGCTAGCTACAACGA ACGGCTT 2068 1557 GCCGUGUC A UCGUUUCC 368 GGAAACGA GGCTAGCTACAACGA CGGCCTT 2068 1557 GCCGUGUC A UCGUUUCC 369 TCTGGAAA GGCTAGCTACAACGA GATGACAC 2071 1568 GUUUCCAG A CCCGGCUC 370 GAGCCGGG GGCTAGCTACAACGA CAGGACC 2072 1573 CAGACCCG G CUCUCUAC 371 GTAGAAAG GGCTAGCTACAACGA CGGGTC 2073 1584 CUCUACCC A CCCGGCUC 372 CCAGTGGG GGCTAGCTACAACGA CGGGTC 2073 1584 CUCUACCC A CUGGGCAG 373 CTGCCCAG GGCTAGCTACAACGA AGGAGCC 2074 1584 CUCUACCC A CUGGGCAG 373 CTGCCCAG GGCTAGCTACAACGA CGGTAGGA 2075 1599 CCCACUGG G CAGCAGAC 374 GTCTGCTG GGCTAGCTACAACGA CCAGTGGG 2076 1592 ACUGGGCA G CAGACAAA 375 TTTGTCTG GGCTAGCTACAACGA CTGCTGAC 2077 1595 GGCAGCAG A CAAAUCCU 376 AGGATTTG GGCTAGCTACAACGA CTGCTGCC 2076 1600 GCAGACAA A UCCUGACU 377 AGTCAGGG GGCTAGCTACAACGA CTGCTGCC 2076 1610 GCAGACAA A UCCUGACU 377 AGTCAGGG GGCTAGCTACAACGA CTGCTGCC 2076 1610 CUGACUUG A CUUGACC 378 GGTACAAG GGCTAGCTACAACGA CTAGCTACCACGA CAGGATT 2080 1611 UGACUUGU A CCGCAUAU 380 ATATGCGG GGCTAGCTACAACGA ACAGATT 2080 1612 UGACUUGU A CCGCAUAU 380 ATATGCGG GGCTAGCTACAACGA ACAGATCA 2081 1613 UGCCCCC A UAUGGUAU 382 ATACCATA GGCTAGCTACAACGA ACAGATC 2081 1614 UGACUUGU A CCGCAUAU 380 ATATGCGG GGCTAGCTACAACGA ACAGATC 2081 1615 CUUGACCC A UAUGGUAU 382 ATACCATA GGCTAGCTACAACGA ACAGCT 2081 1616 AAAUCAU G UAUCCUCC 384 GAGGATACA GGCTAGCTACAACGA ACAGCT 2081 1617 UGUACCCC A UAUGGUAU 382 ATACCATA GGCTAGCTACAACGA CATATGC 2081 1624 CAUAUGGU A UAUCCUCC 384 GAGGATACA GGCTAGCTACAACGA CATATGC 2081 1632 AUCCCUCA A CCUUCAA 385 TTGAGTG GGCTAGCTA					2064
1549 ACGARANG G CCGUGUCA 365 TGACACGG GGCTAGCTACAACGA CTTTTCGT 2067 1552 ANARGGCC G UGUCAUCG 366 CQATGACA GGCTTAGCTACAACGA ACGGCTTT 2068 1554 ANACGACG G UCAUCGUU 367 ANACGATGA GGCTAGCTACAACGA ACGGCCTT 2069 1557 GCCGUGUC A UCGUUUCC 368 GGARAACGA GGCTAGCTACAACGA ACGGCCT 2071 1550 GUGUCAUC G UUUCCAGA 369 TCTGGARA GGCTAGCTACAACGA GATGACAC 2071 1558 GUGUCCAG A CCCGGGCU 370 GRACGGG GGCTAGCTACAACGA CTGGARAC 2072 1573 CAGACCC G CUCUCUAC 371 GTRAGAGA GGCTAGCTACAACGA CGGGTCT 2073 1584 CUCUACCC A CUGGGCAG 373 CTGCCAG GGCTAGCTACAACGA CGGGTCT 2073 1584 CUCUACCC A CUGGCAG 373 CTGCCAG GGCTAGCTACAACGA CGGATAGCA 2074 1584 CUCUACCC A CUGGCAG 374 GTCTGCTG GGCTAGCTACAACGA CGGATGAGC 2075 1599 CCCACUGG G CAGCAGAC 374 GTCTGCTG GGCTAGCTACAACGA CGGATGGC 2076 1592 ACUGGGCA G CAACAAA 375 TTTGTCTG GGCTAGCTACAACGA CCCAGTGG 2077 1596 GGCAGCAG A CAAAUCCU 376 AGGATTTG GGCTAGCTACAACGA CTGCTGCC 2078 1600 GCAGACAA A UCCUGACU 377 AGTCAGGA GGCTAGCTACAACGA CTGCTGCC 2078 1600 GCAGACAA A UCCUGACU 377 AGTCAGGA GGCTAGCTACAACGA CTGCTGCC 2078 1600 GCAGACAA A UCCUGACU 377 AGTCAGGA GGCTAGCTACAACGA CTGCTGCC 2078 1600 GCAGACUA A UCCUGACU 377 AGTCAGGA GGCTAGCTACAACGA CTGCTGCC 2078 1600 GCAGACUA A UCCUGACU 379 AGTCAGGA GGCTAGCTACAACGA CAGGATT 2080 1611 UGACUUGU A CCGCAUU 380 ATATGCG GGCTAGCTACAACGA AAGTCAG 2081 1612 UGACUUGU A CCGCAUUU 380 ATATGCG GGCTAGCTACAACGA ACAGTCA 2082 1615 CUUGUACC AUUGGUAU 382 ATACCATA GGCTAGCTACAACGA ACAGTCA 2082 1615 CUUGUACC AUUGGUAU 382 ATACCATA GGCTAGCTACAACGA ACAGTCA 2081 1612 UGACUCUG A UGAGUUG 381 ACCATATG GGCTAGCTACAACGA ACAGTCA 2081 1614 UACCGCA A UAUGAGU 381 ACCATATG GGCTAGCTACAACGA ATGCGGTA 2081 1615 UACCCCCU A UAUGGUAU 382 ATACCATA GGCTAGCTACAACGA ATGTGGTA 2081 1616 CUCAACCA A CCAUCAAU 386 ATTGTAG GGCTAGCTACAACGA ACAGTCA 2081 1632 AUCCCUCA A CCAUCAAU 386					2065
1552 AAAAGGCC G UGUCAUCGU 366 CGATGACA GGCTACCAACGA GGCCTTT 2068 1554 AAGGCCGU G UCAUCGUU 367 AACGATGA GGCTACCAACGA ACGGCCTT 2069 1557 GCCGUGUC A UCGUUUCC 368 GGAAACGA GGCTACCTACAACGA GACACGGC 2070 1568 GUUUCCAGA 369 TCTGGAAA GGCTAGCTACAACGA GATAGAC 2071 1568 GUUUCCAGA A CCCGCUC 370 GAGCCGGG GGCTAGCTACAACGA GATGACAC 2071 1573 CAGACCCG G CUCUCUAC 371 GTAGAGAG GGCTAGCTACAACGA CTGGAAAC 2072 1573 CAGACCCG G CUCUCUAC 371 GTAGAGAG GGCTAGCTACAACGA CGGGTCTG 2073 1580 GGCUCUU A CCCACUGG 372 CCAGTISGG GGCTAGCTACAACGA AGAGAGCC 2074 1584 CUCUACCC A CUGGGCAG 373 CTGCCCAG GGCTAGCTACAACGA AGAGAGCC 2074 1585 CCCACUGG G CAGCAGAC 374 GTCTGCTG GGCTAGCTACAACGA CGGTTAGG 2075 1592 ACUGGGCA G CAGCAGAC 374 GTCTGCTG GGCTAGCTACAACGA CCAGTGGG 2076 1592 ACUGGGCA G CAGACAA 375 TTTGTCTG GGCTAGCTACAACGA CTGCTGCC 2078 1600 GCAGACAA UCCUGACC 377 AGTCAGGA GGCTAGCTACAACGA CTGCTGCC 2079 1600 GCAGACAA UCCUGACC 377 AGTCAGGA GGCTAGCTACAACGA TTGTCTGC 2079 1600 GCAGACAA CUUGUACC 378 GGTACAAG GGCTAGCTACAACGA CAGGATT 2080 1611 CCUGACUU G UACCGCAU 379 ATSCGGTA GGCTAGCTACAACGA CAGGATT 2080 1612 UGACUUGU A CCGCAUAU 380 ATATGCGG GGCTAGCTACAACGA ACAAGTCA 2081 1615 CUUGUACC G CAUAUGGU 381 ACCATATG GGCTACCAACGA ACAAGTCA 2081 1616 UGACCGCA UAUGGAU 382 ATACCATA GGCTACCAACGA ACAAGTCA 2081 1617 UGACCGCA UAUGGAU 384 AGAGACA GGCTAGCTACAACGA ACAAGTCA 2081 1618 UGACCUCA A CUUACAA 385 TTGAGGGA GGCTAGCTACAACGA ACCATATG 2085 1624 CAUAUGGU A CAUACAG 387 CTTGATGG GGCTACAACGA ACCATATG 2085 1625 CGCAUAUG A CAUACAG 387 CTTGATGG GGCTAGCTACAACGA ACCATATG 2085 1626 CUCACACU A CAUACAG 387 CTTGATGG GGCTAGCTACAACGA CATATG 2085 1631 AUCCCUCA CCCCUGU 389 CAGACCA GGCTAGCTACAACGA CATATG 2095 1644 ACAAUCAG GUACCAU 391 CAGGGGTG GGCTAGCTACAACGA CATATG 209				-	2066
1554					2067
1557 GCCGIGUC A UCGUUUCC 368 GGAAACGA GGCTAGCTACAACGA GACACGC 2070 1560 GUGUCAUC G UUUCCAGA 369 TCTGGAAA GGCTAGCTACAACGA GATGACAC 2071 1568 GUUUCCAG A CCCGGCUC 370 GAGCCGG GGCTAGCTACAACGA CTGGAAAC 2072 1573 CAGACCCG G CUCUCUAC 371 GTAGGAGA GGCTAGCTACAACGA CGGGTCTG 2073 1580 GGCUCUCU A CCCACUGG 372 CCAGTGGG GGCTAGCTACAACGA AGGAGCC 2074 1584 CUCUACCC A CUGGGCAG 373 CTGCCCAG GGCTAGCTACAACGA GGGTGAGG 2074 1589 CCCACUGG G CAGCAGAC 374 GTCTGCTG GGCTAGCTACAACGA GGGTGAGG 2075 1592 ACUGGGCAG C CAGACAAA 375 TTTGTCTG GGCTAGCTACAACGA CCAGTGG 2076 1595 GGCAGCAG A UCCUGACU 376 AGGATTATG GGCTAGCTACAACGA TCTGTCC 2077 1596 GGCAGCAA A UCCUGACU 377 AGTCAGGA GGCTAGCTACAACGA TTGTCTGC 2079 1606 AAAUCCUG A CUCGACU 378 GGTACAAG GGCTAGCTACAACGA CTGCTTCC 2079 1610 CCUGACUU G UACCGCAU 379 ATGCGGTA GGCTAGCTACAACGA AGGATTT 2080 1611 UGACUGUG A CCGCAUAU 380 ATATGCGG GGCTAGCTACAACGA ACAAGTCA 2082 1615 CUUGUACC CAUAUGGU 381 ACCATATG GGCTAGCTACAACGA ACAAGTCA 2082 1616 UGACCGCAU A UGGUAUCC 383 GGATACCA GGCTAGCTACAACGA ACAAGTCA 2084 1619 UGACCGCAU A UGGUAUCC 384 GAGGGATA GGCTAGCTACAACGA ACAAGTCA 2084 1619 UGACCGCAU A UGGUAUCC 384 GAGGGATA GGCTAGCTACAACGA ACCAGATCA 2084 1622 CGCAUAUG G UAUCCCUC 384 GAGGGATA GGCTAGCTACAACGA ACCAGATCA 2085 1624 CAUAUGGU A UGGUAUCC 385 GATACCA GGCTAGCTACAACGA ACCAGTACA 2086 1624 CAUAUGGU A UCCCUCAA 385 TTGAGGGA GGCTAGCTACAACGA ACCAGTACA 2086 1624 CAUAUGGU A UCCCUCAA 385 TTGAGGGA GGCTAGCTACAACGA ACCAGTACA 2086 1624 CAUAUGGU A UCCCUCAA 385 TTGAGGGA GGCTAGCTACAACGA ACCAGTACA 2086 1639 AACCUACA A UCAAGUGG 380 CACTAGGA GGCTAGCTACAACGA ACCAGGA TGAGGGAT 2087 1631 AUCCCUCA A CAUACAGA 386 ATTGTAGG GGCTAGCTACAACGA ACCAGGAT 2089 1644 ACAAUCAA G UGGUUCUG 389 CAGAACCA GGCTAGCTACAACGA CACTAGGA 2091 1651 GUCUGGCA A UCACCUUG 391		AAAAGGCC G UGUCAUCG	366		2068
1566		AAGGCCGU G UCAUCGUU	367		2069
1568		GCCGUGUC A UCGUUUCC	368		2070
1573			369		2071
1580 GGCUCUCU A CCCACUGG 372 CCAGTGGG GGCTAGCTACAACGA AGAGAGGC 2074 1584 CUCURCCC A CUGGGCAG 373 CTGCCCAG GGCTAGCTACAACGA GGGTAGAG 2075 1589 CCCACUGG G CAGCAGAC 374 GTCTGCTG GGCTAGCTACAACGA CCAGTGGG 2076 1592 ACUGGGCA G CAGACAAA 375 TTTGTCTG GGCTAGCTACAACGA TGCCCAGT 2077 1596 GGCAGCAG A CAAAUCCU 376 AGGATTG GGCTAGCTACAACGA TGCCCAGT 2077 1596 GGCAGCAG A UCCUGACU 377 AGTCAGGA GGCTAGCTACAACGA TGCCCAGT 2078 1600 GCAGACAA A UCCUGACU 377 AGTCAGGA GGCTAGCTACAACGA TTGCTGCC 2079 1606 ARAUCCUG A CUUGUACC 378 GGTACAGGA GGCTAGCTACAACGA CAGGATTT 2080 1610 CCUGACUU G UACCGCAU 379 ATGCGGTA GGCTAGCTACAACGA AAGTCAG 2081 1612 UGACUUGU A CCGCAUAU 380 ATATGCGG GGCTAGCTACAACGA ACAGTCA 2082 1615 CUUGUACC G CAILAUGGU 381 ACCATATG GGCTAGCTACAACGA ACAGTCA 2082 1617 UGUACCGC A UAUGGUAU 382 ATACCATA GGCTAGCTACAACGA ACGGATAC 2084 1619 UACCGCAU A UGGUAUCC 384 GAGGGATA GGCTAGCTACAACGA ACGGTACA 2085 1622 CGCAILAUG G UAUCCCUC 384 GAGGGATA GGCTAGCTACAACGA ACGGATAC 2085 1632 AUCCCUCA A CCUACAAU 386 ATTGTAGG GGCTAGCTACAACGA ACCATATG 2087 1632 AUCCCUCA A CAAUCAAG 387 CTTGATTG GGCTAGCTACAACGA ACCATATG 2088 1634 CUCAACCU A CAAUCAAG 387 CTTGATTG GGCTAGCTACAACGA ACCATATG 2089 1635 AACCUACA A UCAAGUAG 388 CCACTTGA GGCTAGCTACAACGA ACCATATG 2089 1646 CUCAACCU A CAAUCAAG 389 CAGAACCA GGCTAGCTACAACGA ATGAGTTCAG 2089 1651 GUUCUGG A CCCCUGU 391 CAGGGGTG GGCTAGCTACAACGA CATATGT 2090 1664 ACAAUCAA G UGGUUCUG 389 CAGAACCA GGCTAGCTACAACGA CAGAACCA 2093 1655 GUUCUGG A CCCCUGU 391 CAGGGGTG GGCTAGCTACAACGA CAGAACCA 2093 1666 GCACCCCU G UAACCAUA 392 TACAGGGG GGCTAGCTACAACGA CAGAACCA 2093 1667 CUGUAACCA A UCAAUUU 395 ATGATTA GGCTAGCTACAACGA CAGAACCA 2094 1667 CUGUAACCA A UCAUUCCG 396 CAGACCAGA GGCTAGCTACAACGA CAGAACCA 2097 1668 GAAGCAAG G CAAGGUGU 398 ACACCTTG GGC		GUUUCCAG A CCCGGCUC	370		2072
1584		· · · · · · · · · · · · · · · · · · ·	371	GTAGAGAG GGCTAGCTACAACGA CGGGTCTG	2073
1589 CCCACUGG G CAGCAGAC 374 GTCTGCTG GGCTAGCTACAACGA CCAGTGGG 2076 1592 ACUGGGCA G CAGACAAA 375 TTTGTCTG GGCTAGCTACAACGA TGCCCAGT 2077 1596 GGCAGCAG A CAAAUCCU 376 AGGATTTG GGCTAGCTACAACGA TGCCCAGT 2078 1600 GCAGACAA A UCCUGACU 377 AGTCAGGA GGCTAGCTACAACGA TTGTCTGC 2079 1606 AAAUCCUG A CUUGUACC 378 GGTACAAG GGCTAGCTACAACGA CAGGATTT 2080 1610 CCUGACUU G UACCGCAU 379 ATGCGGTA GGCTAGCTACAACGA AAGTCAG 2081 1612 UGACUUGU A CCGCAUAU 380 ATATGCGG GGCTAGCTACAACGA ACAAGTCA 2082 1615 CUUGUACC G CAUAUGGU 381 ACCATATG GGCTAGCTACAACGA ACAAGTCA 2083 1617 UGUACCGC A UAUGGUAU 382 ATACCATA GGCTAGCTACAACGA ATGCGGTAA 2084 1619 UACCGCAU A UGGUAUCC 384 GGATACCA GGCTAGCTACAACGA ATGCGGTA 2085 1622 CGCAUAUG A UCCCUCA 385 GGATACCA GGCTAGCTACAACGA ATGCGGTA 2085 1624 CAUAUGGU A UCCCUCAA 385 TTGAGGGA GGCTAGCTACAACGA ACCATATG 2086 1624 CAUAUGGU A UCCCUCAA 385 TTGAGGGA GGCTAGCTACAACGA ACCATATG 2087 1632 AUCCCUCA A CCUACAAU 386 ATTGTAGG GGCTAGCTACAACGA ACCATATG 2087 1632 AUCCCUCA CAAUCAAG 387 CTTGATTG GGCTAGCTACAACGA AGGTTGAC 2089 1634 AACAUCAA UCAAGUGG 388 CCACTTGA GGCTAGCTACAACGA AGGTTGAC 2089 1634 AACAUCAA UCAAGUGG 388 CCACTTGA GGCTAGCTACAACGA AGGTTGAC 2090 1644 ACAAUCAA UCAAGUGG 389 CAGAACCA GGCTAGCTACAACGA TGTAGGTT 2091 1647 AUCAAGUG CACCCCUG 391 CAGGGGTG GGCTAGCTACAACGA CACTTGAT 2092 1653 UGGUUCUG CACCCCUG 391 CAGGGGTG GGCTAGCTACAACGA CACTTGAT 2092 1653 UGGUUCUG CACCCCUG 392 TACAGGG GGCTAGCTACAACGA CACTTGAT 2092 1654 GCACCCCU GUAACCAUA 393 TATGGTTA GGCTACCAACGA CACTTGAT 2092 1664 CCCCUGUA 2094 CAGAACCA GGCTAGCTACAACGA CACTTGAT 2092 1664 CCCCUGUA A CCAUAAUC 394 GATTATGG GGCTAGCTACAACGA CACTTGAT 2095 1664 CCCCUGUA A CCAUAAUC 394 GATTATGG GGCTAGCTACAACGA TACAGGGG COGAACCA GCCAGAAC CAGAACCA GCCAGAAC CAGAACCA GCCAGAAC CAGAACCA GCCAGAAC CAGAACCA GCCAGAAC CAGAACC					2074
1592 ACUGGGCA G CAGACAAA 375 TTTGTCTG GGCTAGCTACAACGA TGCCCAGT 2077 1596 GGCAGCAG A CAAAUCCU 376 AGGATTTG GGCTAGCTACAACGA CTGCTGCC 2078 1600 GCAGACAA A UCCUGACU 377 AGTCAGGA GGCTAGCTACAACGA TTGTCTGC 2079 1606 AAAUCCUG A CUUGUACC 378 GGTACAAG GGCTAGCTACAACGA CAGGATTT 2080 1610 CCUGACUU G UACCGCAU 379 ATGCGGTA GGCTAGCTACAACGA AAGTCAG 2081 1612 UGACUUGU A CCGCAUJU 380 ATATGCGG GGCTAGCTACAACGA ACAAGTCA 2082 1615 CUUGUACC G CAIJAUGGU 381 ACCATATG GGCTAGCTACAACGA GGTACAACG 2083 1617 UGUACCGC A UAUGGUAU 382 ATACCATA GGCTAGCTACAACGA GGGTACAA 2084 1619 UACCGCAU A UGGUAUCC 384 GAGGGATA GGCTAGCTACAACGA CATATGCG 2085 1622 CGCAUJUG G UAUCCCUC 384 GAGGGATA GGCTAGCTACAACGA CATATGCG 2086 1624 CAUJAUGGU A UCCCUCAA 385 TTGAGGGA GGCTAGCTACAACGA CATATGCG 2086 1624 CAUJAUGGU A UCCCUCAA 385 TTGAGGGA GGCTAGCTACAACGA ACCATATG 2086 1632 AUCCCUCA A CCUJACAAU 386 ATTGTAGG GGCTAGCTACAACGA ACGATATG 2087 1632 AUCCCUCA A CCUJACAAU 386 ATTGTAGG GGCTAGCTACAACGA ACGATATG 2089 1639 AACCUJACA A UCAAGUGG 388 CCACTTGA GGCTAGCTACAACGA TGAGGGT 2090 1644 ACAJUCAG A UCAAGUGG 388 CCACTTGA GGCTAGCTACAACGA TGTAGGT 2091 1647 AUCAAGUG G UUCUGGCA 390 TGCCAGAA GGCTAGCTACAACGA TGAGTTGT 2091 1647 AUCAAGUG G UUCUGGCA 391 CAGGGGTG GGCTAGCTACAACGA CAGAACCA 2093 1655 GUUCUGG G CACCCCUG 391 CAGGGGTG GGCTAGCTACAACGA CAGAACCA 2093 1655 GUUCUGG G CACCCCUG 391 CAGGGGTG GGCTAGCTACAACGA CAGAACCA 2093 1655 GUUCUGG G CACCCCUG 391 CAGGGGTG GGCTAGCTACAACGA CAGAACCA 2094 1661 GCACCCU G UAACCAUA 393 TACAGGGG GGCTAGCTACAACGA CAGAACCA 2095 1656 GUUCUGGC A CCCUGUA 392 TACAGGGG GGCTAGCTACAACGA CAGAACCA 2095 1664 CCCCUGUA A CCAUJAUC 394 GATTATGG GGCTAGCTACAACGA CAGAACCA 2096 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA TACAGGG C2096 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA TACAGGG C2096 1666 CCACCCUGUA A C		CUCUACCC A CUGGGCAG	373	CTGCCCAG GGCTAGCTACAACGA GGGTAGAG	2075
1596 GGCAGCAG A CAAAUCCU 376 AGGATTTG GGCTAGCTACAACGA CTGCTGCC 2078 1600 GCAGACAA A UCCUGACU 377 AGTCAGGA GGCTAGCTACAACGA TTGTCTGC 2079 1606 AAAUCCUG A CUUGUACC 378 GGTACAAG GGCTAGCTACAACGA CAGGATTT 2080 1610 CCUGACUU G UACCGCAU 379 ATGCGGTA GGCTAGCTACAACGA AAGTCAGG 2081 1612 UGACUUGU A CCGCAUAU 380 ATATGCGG GGCTAGCTACAACGA ACATCA 2082 1615 CUUGUACC G CAUAUGGU 381 ACCATATG GGCTAGCTACAACGA ACAAGTCA 2082 1617 UGUACCGC A UAUGGUAU 382 ATACCATA GGCTAGCTACAACGA GCGGTACA 2084 1619 UACCGCAU A UGGUAUCC 383 GGATACCA GGCTAGCTACAACGA ATGCGGTA 2085 1622 CGCAUAUG G UAUCCCUC 384 GAGGGATA GGCTAGCTACAACGA ATGCGGTA 2086 1624 CAUAUGGU A UCCCUCAA 385 TTGAGGGA GGCTAGCTACAACGA ACCATATG 2087 1632 AUCCCUCA A CCUACAAU 386 ATTGTAGG GGCTAGCTACAACGA TGAGGAT 2088 1636 CUCAACCU A CAAUCAAG 387 CTTGATTG GGCTAGCTACAACGA AGGTTGGT 2090 1639 AACCUACA A UCAAUGAG 388 CCACTTGG GGCTAGCTACAACGA TGAGGAT 2090 1644 ACAAUCAA G UGGUUCUG 389 CAGAACCA GGCTAGCTACAACGA TGTAGGT 2091 1647 AUCAAGUG G UUCUGGCA 390 CAGAACCA GGCTAGCTACAACGA TGTAGTT 2091 1647 AUCAAGUG G UUCUGGCA 391 CAGGGGT GGCTAGCTACAACGA CACTTGAT 2092 1653 UGGUUCUG G CACCCCUG 391 CAGGGGT GGCTAGCTACAACGA CACTTGAT 2092 1654 CCCCUGUA A CCCCCUG 391 CAGGGGT GGCTAGCTACAACGA CACTTGAT 2092 1655 GUUCUGGC A CCCCCUG 391 CAGGGGT GGCTAGCTACAACGA CACTTGAT 2092 1664 CCCCUGUA A CCAUAAUC 394 GATTATGG GGCTAGCTACAACGA CACTTGAT 2092 1657 CUGUAACC A UAACCAUA 393 TATGGTTA GGCTAGCTACAACGA CAGGACCA 2093 1666 CCCCCUGUA A CCAUAAUC 394 GATTATGG GGCTAGCTACAACGA CAGGACCA 2093 1667 CUGUAACC A UAACCAUA 393 TATGGTTA GGCTAGCTACAACGA CAGGACCA 2095 1668 CACCCCU G UAACCAUA 396 CGGAATGA GGCTAGCTACAACGA CAGGACCA 2096 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA CAGGACCA 2097 1670 UAACCAUA A UCAUUCCG 396 CGGAATGA GGCTAGCTACAACGA CAGGACCA 2097 1670 UAACCAUA A UCAUAUCCG 396 CGGAATGA GGCTAGCTACAACGA CAGGACCA 2097 1670 UAACCAUA A UCAUAUCCG 396 CGGAATGA GGCTAGCTACAACGA CATTATGG 2099 1668 GAAGCAAG G CUGAACCU 399 AAGTCACA GGCTAGCTACAACGA CATTATGG 2099	1589	CCCACUGG G CAGCAGAC	374	GTCTGCTG GGCTAGCTACAACGA CCAGTGGG	2076
1600 GCAGACAA A UCCUGACU 377 AGTCAGGA GGCTAGCTACAACGA TTGTCTGC 2079 1606 AAAUCCUG A CUUGUACC 378 GGTACAAG GGCTAGCTACAACGA CAGGATTT 2080 1610 CCUGACUU G UACCGCAU 379 ATGCGGTA GGCTAGCTACAACGA AAGTCAG 2081 1612 UGACUUGU A CCGCAUAU 380 ATATGCGG GGCTAGCTACAACGA ACAAGTCA 2082 1615 CUUGUACC G CAUAUGGU 381 ACCATATG GGCTAGCTACAACGA GGCGTACA 2083 1617 UGUACCGC A UADGGUAU 382 ATACCATA GGCTAGCTACAACGA GCGGTACA 2084 1619 UACCGCAU A UGGUAUCC 383 GGATACCA GGCTAGCTACAACGA ATGCGGTA 2085 1622 CGCAIJAUG G UAUCCCUC 384 GAGGGATA GGCTAGCTACAACGA ACCATATG 2087 1632 AUCCCUCA A CCUACAAU 386 ATTGTAGG GGCTAGCTACAACGA TGAGGAT 2088 1636 CUCAACCU A CAAUCAAG 387 CTTGATTG GGCTAGCTACAACGA TGATGGT 2099 1643 ACCAUCAA A UCAAGUGG 388 CCACTTGA GGCTAGCTACAACGA TGATTGT 2090 1644 ACAAUCAA G UGGUUCUG 389 CAGAACCA GGCTAGCTACAACGA TAGTATTT 209	<u> </u>		375		2077
1606 ARAUCCUG A CUUGUACC 378 GGTACAAG GGCTAGCTACAACGA CAGGATTT 2080 1610 CCUGACUU G UACCGCAU 379 ATGCGGTA GGCTAGCTACAACGA AAGTCAG 2081 1612 UGACUUGU A CCGCAUAU 380 ATATGCGG GGCTAGCTACAACGA ACAAGTCA 2082 1615 CUUGUACC G CAUAUGGU 381 ACCATATG GGCTAGCTACAACGA GGTACAAG 2083 1617 UGUACCGC A UAUGGUAU 382 ATACCATA GGCTAGCTACAACGA ATGCGGTA 2084 2084 1619 UACCGCAU A UGGUAUCC 383 GGATACCA GGCTAGCTACAACGA ATGCGGTA 2085 2085 1622 CGCAUAUG G UAUCCCUCA 384 GAGGGATA GGCTAGCTACAACGA ACCATATG 2087 2087 1632 AUCCCUCA A CCUACAAU 385 TTGAGGGA GGCTAGCTACAACGA ACCATATG 2087 2089 1636 CUCAACCU A CAAUCAAG 387 CTTGATTG GGCTAGCTACAACGA TGAGGTT 2090 2089 1639 AACCUACA A UCAAGUGG 388 CCACTTGA GGCTAGCTACAACGA TGTAGGTT 2091 1644 ACAAUCAA G UGGUUCUG 389 CAGAACCA GGCTAGCTACAACGA TTGATTGT 2091 1647 AUCAGUG G UUCUGGCA 390 TGCCAGAA GGCTAGCTACAACGA CACTTGAT 2092 1653 UGGUUCUG G CACCCCUG 391 CAGGGGTG GGCTAGCTACAACGA CAGAACCA 2093			376	 	2078
1610 CCUGACUU G UACCGCAU 379 ATGCGGTA GGCTAGCTACAACGA AAGTCAGG 2081 1612 UGACUUGU A CCGCAUAU 380 ATATGCGG GGCTAGCTACAACGA ACAAGTCA 2082 1615 CUUGUACC G CAUAUGGU 381 ACCATATG GGCTAGCTACAACGA GGTACAAG 2083 1617 UGUACCGC A UAUGGUAU 382 ATACCATA GGCTAGCTACAACGA GGGTACA 2084 1619 UACCGCAU A UGGUAUCC 383 GGATACCA GGCTAGCTACAACGA ATGCGGTA 2085 1622 CGCAUAUG G UAUCCCUC 384 GAGGGATA GGCTAGCTACAACGA ATGCGGTA 2086 1624 CAUAUGGU A UCCCUCAA 385 TTGAGGGA GGCTAGCTACAACGA ACCATATG 2087 1632 AUCCCUCA A CCUACAAU 386 ATTGTAGG GGCTAGCTACAACGA ACCATATG 2087 1634 AUCCACA A UCAAGUGG 387 CTTGATTG GGCTAGCTACAACGA AGGTTGAG 2089 1639 AACCUACA A UCAAGUGG 388 CCACTTGA GGCTAGCTACAACGA AGGTTGAG 2089 1644 ACAAUCAA G UGGUUCUG 389 CAGAACCA GGCTAGCTACAACGA TGTAGGTT 2090 1644 ACAAUCAA G UGGUUCUG 389 CAGAACCA GGCTAGCTACAACGA TGTAGGTT 2091 1647 AUCAAGUG G UUCUGGCA 390 TGCCAGAA GGCTAGCTACAACGA CACTTGAT 2092 1653 UGGUUCUG G CACCCCUG 391 CAGGGGTG GGCTAGCTACAACGA CAGAACCA 2093 1655 GUUCUGG C CACCCCUG 391 CAGGGGTG GGCTAGCTACAACGA CAGAACCA 2093 1655 GUUCUGGC A CCCCUGUA 392 TACAGGGG GGCTAGCTACAACGA CAGAACCA 2094 1661 GCACCCCU G UAACCAUA 393 TATGGTTA GGCTAGCTACAACGA AGGGGTGC 2095 1664 CCCCUGUA A CCAUAAUC 394 GATTATGG GGCTAGCTACAACGA TACAGGGG 2096 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA TACAGGGG 2096 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA TACAGGGG 2097 1670 UAACCAUA A UCAUUCCG 396 CGGAATGA GGCTAGCTACAACGA TACAGGGG 2097 1670 UAACCAUA A UCAUUCCG 396 CGGAATGA GGCTAGCTACAACGA TACAGGGG 2097 1671 UAACCAUA A UCAUUCCG 396 CGGAATGA GGCTAGCTACAACGA TACAGGGG 2099 1661 AUUCCGAAG CAAGGUGU 398 ACACCTTG GGCTAGCTACAACGA CTTGCTTC 2091 1661 GAAGCAAG G CAAGGUGU 398 ACACCTTG GGCTAGCTACAACGA CTTGCTAC 2099 1661 AUUCCGAAG GAAGGUGU 398 ACACCTTG GGCTAGCTACAACGA CTTGCTTC 2101		GCAGACAA A UCCUGACU	377	AGTCAGGA GGCTAGCTACAACGA TTGTCTGC	2079
1612 UGACUUGU A CCGCAUAU 380 ATATGCGG GGCTAGCTACAACGA ACAAGTCA 2082 1615 CUUGUACC G CAUAUGGU 381 ACCATATG GGCTAGCTACAACGA GGTACAAG 2083 1617 UGUACCGC A UAUGGUAU 382 ATACCATA GGCTAGCTACAACGA GGGTACA 2084 1619 UACCGCAU A UGGUAUCC 383 GGATACCA GGCTAGCTACAACGA GCGGTACA 2085 1622 CGCAUAUG G UAUCCCUC 384 GAGGGATA GGCTAGCTACAACGA ATGCGGTA 2086 1624 CAUAUGGU A UCCCUCAA 385 TTGAGGGA GGCTAGCTACAACGA ACCATATG 2087 1632 AUCCCUCA A CCUACAAU 386 ATTGTAGG GGCTAGCTACAACGA ACCATATG 2087 1633 AUCCCUCA A CCUACAAU 386 ATTGTAGG GGCTAGCTACAACGA AGGTTGAG 2089 1639 AACCUACA A UCAAGUGG 387 CTTGATTG GGCTAGCTACAACGA AGGTTGAG 2089 1639 AACCUACA A UCAAGUGG 388 CCACTTGA GGCTAGCTACAACGA TGTAGGTT 2090 1644 ACAAUCAA G UGGUUCUG 389 CAGAACCA GGCTAGCTACAACGA TGTAGGTT 2091 1647 AUCAAGUG G UUCUGGCA 390 TGCCAGAA GGCTAGCTACAACGA CACTTGAT 2092 1653 UGGUUCUG G CACCCCUG 391 CAGGGGT GGCTAGCTACAACGA CACTTGAT 2092 1654 CUCUGGC A CCCCUGUA 392 TACAGGGG GGCTAGCTACAACGA CAGAACCA 2093 1655 GUUCUGGC A CCCCUGUA 393 TATGGTTA GGCTAGCTACAACGA AGGGTGC 2094 1661 GCACCCCU G UAACCAUA 393 TATGGTTA GGCTAGCTACAACGA AGGGGTGC 2095 1664 CCCCUGUA A CCAUAAUC 394 GATTATGG GGCTAGCTACAACGA AGGGGTGC 2095 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA TACAGGG 2096 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA TACAGGG 2097 1670 UAACCAUA A UCAUACCG 396 CGGAATGA GGCTAGCTACAACGA TATGGTTA 2098 1673 CCAUAAUC A UCCCGAAG 397 CTTCGGAA GGCTAGCTACAACGA CTTGATA 2099 1681 AUUCCGAAG GCAAGCCUU 399 AAGTCACA GGCTAGCTACAACGA CTTGATA 2099 1681 AUUCCGAAG GCAAGCCUU 399 AAGTCACA GGCTAGCTACAACGA CTTGCTAC 2101		AAAUCCUG A CUUGUACC	378		2080
1615 CUUGUACC G CAUAUGGU 381 ACCATATG GGCTAGCTACAACGA GGTACAAG 2083 1617 UGUACCGC A UAUGGUAU 382 ATACCATA GGCTAGCTACAACGA GCGGTACA 2084 1619 UACCGCAU A UGGUAUCC 383 GGATACCA GGCTAGCTACAACGA ATGCGGTA 2085 1622 CGCAUAUG G UAUCCCUC 384 GAGGGATA GGCTAGCTACAACGA CATATGCG 2086 1624 CAUAUGGU A UCCCUCAA 385 TTGAGGGA GGCTAGCTACAACGA ACCATATG 2087 1632 AUCCCUCA A CCUACAAU 386 ATTGTAGG GGCTAGCTACAACGA TGAGGGAT 2088 1636 CUCAACCU A CAAUCAAG 387 CTTGATTG GGCTAGCTACAACGA TGAGGGAT 2089 1639 AACCUACA A UCAAGUGG 388 CCACTTGA GGCTAGCTACAACGA TGTAGGT 2090 1644 ACAAUCAA G UGGUUCUG 389 CAGAACCA GGCTAGCTACAACGA TGTAGGTT 2091 1647 AUCAAGUG G UUCUGGCA 390 TGCCAGAA GGCTAGCTACAACGA CACTATGT 2092 1653 UGGUUCUG G CACCCCUG 391 CAGGGGT GGCTAGCTACAACGA CACTAGAT 2092 1655 GUUCUGGC A CCCCUGUA 392 TACAGGGG GGCTAGCTACAACGA CAGAACCA 2093 1655 GUUCUGGC A CCCCUGUA 392 TACAGGGG GGCTAGCTACAACGA CAGAACCA 2094 1661 GCACCCCU G UAACCAUA 393 TATGGTTA GGCTAGCTACAACGA AGGGGTGC 2095 1664 CCCCUGUA A CCAUAAUC 394 GATTATGG GGCTAGCTACAACGA TACAGGGG 2096 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA TACAGGGG 2096 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA TACAGGGG 2097 1670 UAACCAUA A UCAUUCCG 396 CGGAATGA GGCTAGCTACAACGA TACAGGGG 2097 1671 UAACCAUA A UCAUUCCG 396 CGGAATGA GGCTAGCTACAACGA TATGGTTA 2098 1673 CCAUAAUC A UUCCGAAG 397 CTTCGGAA GGCTAGCTACAACGA GATTATGG 2099 1681 AUUCCGAAG G CAAGGUGU 398 ACACCTTG GGCTAGCTACAACGA TATGGTTA 2098 1682 GAAGCAAG G UGUGACUU 399 AAGTCACA GGCTAGCTACAACGA CTTGCTTC 2101		CCUGACUU G UACCGCAU	379	ATGCGGTA GGCTAGCTACAACGA AAGTCAGG	2081
1617 UGUACCGC A UAUGGUAU 1619 UACCGCAU A UGGUAUCC 383 GGATACCA GGCTAGCTACAACGA ATGCGGTA 2085 1622 CGCAUAUG G UAUCCCUC 384 GAGGGATA GGCTAGCTACAACGA CATATGCG 2086 1624 CAUAUGGU A UCCCUCAA 385 TTGAGGGA GGCTAGCTACAACGA ACCATATG 2087 1632 AUCCCUCA A CCUACAAU 386 ATTGTAGG GGCTAGCTACAACGA TGAGGGAT 2088 1636 CUCAACCU A CAAUCAAG 387 CTTGATTG GGCTAGCTACAACGA AGGTTGAG 2089 1639 AACCUACA A UCAAGUGG 388 CCACTTGA GGCTAGCTACAACGA TGAGGGT 2090 1644 ACAAUCAA G UGGUUCUG 389 CAGAACCA GGCTAGCTACAACGA TTGATTGT 2091 1647 AUCAAGUG G UUCUGGCA 390 TGCCAGAA GGCTAGCTACAACGA TTGATTGT 2092 1653 UGGUUCUG G CACCCCUG 391 CAGGGGTG GGCTAGCTACAACGA CAGAACCA 2093 1655 GUUCUGGC A CCCCUGUA 392 TACAGGGG GGCTAGCTACAACGA GCCAGAAC 2094 1661 GCACCCCU G UAACCAUA 393 TATGGTTA GGCTAGCTACAACGA AGGGGTGC 2095 1664 CCCCUGUA A CCAUAAUC 394 GATTATGG GGCTAGCTACAACGA AGGGGTGC 2095 1664 CCCCUGUA A CCAUAAUC 394 GATTATGG GGCTAGCTACAACGA TACAGGGG 2096 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA TACAGGGG 2096 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA TACAGGGG 2097 1670 UAACCAUA A UCAUUCCG 396 CGGAATGA GGCTAGCTACAACGA TACAGGGG 2097 1671 CAGAGGA G CAAGGUGU 398 ACACCTTG GGCTAGCTACAACGA TATGGTTA 2098 1681 AUUCCGAA G CAAGGUGU 398 ACACCTTG GGCTAGCTACAACGA TTCGGAAT 2100 1686 GAAGCAAG G UGUGACUU 399 AAGTCACA GGCTAGCTACAACGA CTTGCTTC 2101			380	ATATGCGG GGCTAGCTACAACGA ACAAGTCA	2082
1619 UACCGCAU A UGGUAUCC 383 GGATACCA GGCTAGCTACAACGA ATGCGGTA 2085 1622 CGCAUAUG G UAUCCCUC 384 GAGGGATA GGCTAGCTACAACGA CATATGCG 2086 1624 CAUAUGGU A UCCCUCAA 385 TTGAGGGA GGCTAGCTACAACGA ACCATATG 2087 1632 AUCCCUCA A CCUACAAU 386 ATTGTAGG GGCTAGCTACAACGA TGAGGGAT 2088 1636 CUCAACCU A CAAUCAAG 387 CTTGATTG GGCTAGCTACAACGA AGGTTGAG 2089 1639 AACCUACA A UCAAGUGG 388 CCACTTGA GGCTAGCTACAACGA TGTAGGTT 2090 1644 ACAAUCAA G UGGUUCUG 389 CAGAACCA GGCTAGCTACAACGA TGATTGT 2091 1647 AUCAAGUG G UUCUGGCA 390 TGCCAGAA GGCTAGCTACAACGA CACTTGAT 2092 1653 UGGUUCUG G CACCCCUG 391 CAGGGGTG GGCTAGCTACAACGA CAGAACCA 2093 1655 GUUCUGGC A CCCCUGUA 392 TACAGGGG GGCTAGCTACAACGA CAGAACCA 2094 1661 GCACCCCU G UAACCAUA 393 TATGGTTA GGCTAGCTACAACGA AGGGGTGC 2095 1664 CCCCUGUA A CCAUAAUC 394 GATTATGG GGCTAGCTACAACGA AGGGGTGC 2095 1664 CCCCUGUA A CCAUAAUC 394 GATTATGG GGCTAGCTACAACGA TACAGGGG 2096 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA TACAGGGG 2096 1668 CCCUGUA A UCAUUCCG 396 CGGAATGA GGCTAGCTACAACGA TACAGGGG 2096 1669 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA TATGGTTA 2098 1670 UAACCAUA A UCAUUCCG 396 CGGAATGA GGCTAGCTACAACGA TATGGTTA 2098 1671 CCAUAAUC A UUCCGAAG 397 CTTCGGAA GGCTAGCTACAACGA TATGGTTA 2098 1681 AUUCCGAAG CAAGGUGU 398 ACACCTTG GGCTAGCTACAACGA CTTGCTTC 2101			381		2083
1622 CGCAUAUG G UAUCCCUC 384 GAGGGATA GGCTAGCTACAACGA CATATGCG 2086 1624 CAUAUGGU A UCCCUCAA 385 TTGAGGGA GGCTAGCTACAACGA ACCATATG 2087 1632 AUCCCUCA A CCUACAAU 386 ATTGTAGG GGCTAGCTACAACGA TGAGGGAT 2088 1636 CUCAACCU A CAAUCAAG 387 CTTGATTG GGCTAGCTACAACGA AGGTTGAG 2089 1639 AACCUACA A UCAAGUGG 388 CCACTTGA GGCTAGCTACAACGA TGTAGGTT 2090 1644 ACAAUCAA G UGGUUCUG 389 CAGAACCA GGCTAGCTACAACGA TTGATTGT 2091 1647 AUCAAGUG G UUCUGGCA 390 TGCCAGAA GGCTAGCTACAACGA CACTTGAT 2092 1653 UGGUUCUG G CACCCCUG 391 CAGGGGTG GGCTAGCTACAACGA CACTTGAT 2093 1655 GUUCUGGC A CCCCUGUA 392 TACAGGGG GGCTAGCTACAACGA CAGAACCA 2093 1661 GCACCCCU G UAACCAUA 393 TATGGTTA GGCTAGCTACAACGA AGGGGTGC 2095 1664 CCCCUGUA A CCAUAAUC 394 GATTATGG GGCTAGCTACAACGA AGGGGTGC 2096 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA TACAGGGG 2096 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA TATGGTTA 2098 1670 UAACCAUA A UCAUUCCG 396 CGGAATGA GGCTAGCTACAACGA TATGGTTA 2098 1673 CCAUAAUC A UACCGAAG 397 CTTCGGAA GGCTAGCTACAACGA CATTATGG 2099 1681 AUUCCGAAG CAAGGUGU 398 ACACCTTG GGCTAGCTACAACGA TTCGGAAT 2100 1686 GAAGCAAG G UGUGACUU 399 AAGTCACA GGCTAGCTACAACGA CTTGCTTC 2101			382		2084
1624 CAUAUGGU A UCCCUCAA 385 TTGAGGGA GGCTAGCTACAACGA ACCATATG 2087 1632 AUCCCUCA A CCUACAAU 386 ATTGTAGG GGCTAGCTACAACGA TGAGGGAT 2088 1636 CUCAACCU A CAAUCAAG 387 CTTGATTG GGCTAGCTACAACGA AGGTTGAG 2089 1639 AACCUACA A UCAAGUGG 388 CCACTTGA GGCTAGCTACAACGA TGTAGGTT 2090 1644 ACAAUCAA G UGGUUCUG 389 CAGAACCA GGCTAGCTACAACGA TTGATTGT 2091 1647 AUCAAGUG G UUCUGGCA 390 TGCCAGAA GGCTAGCTACAACGA CACTTGAT 2092 1653 UGGUUCUG G CACCCCUG 391 CAGGGGTG GGCTAGCTACAACGA CAGAACCA 2093 1655 GUUCUGGC A CCCCUGUA 392 TACAGGGG GGCTAGCTACAACGA GCCAGAAC 2094 1661 GCACCCCU G UAACCAUA 393 TATGGTTA GGCTAGCTACAACGA AGGGGTGC 2095 1664 CCCCUGUA A CCAUAAUC 394 GATTATGG GGCTAGCTACAACGA AGGGGTGC 2096 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA TACAGGGG 2096 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA TATGGTTA 2098 1670 UAACCAUA A UCAUUCCG 396 CGGAATGA GGCTAGCTACAACGA TATGGTTA 2098 1673 CCAUAAUC A UUCCGAAG 397 CTTCGGAA GGCTAGCTACAACGA TATGGTTA 2099 1681 AUUCCGAAG CAAGGUGU 398 ACACCTTG GGCTAGCTACAACGA TTCGGAAT 2100 1686 GAAGCAAG G UGUGACUU 399 AAGTCACA GGCTAGCTACAACGA CTTGCTTC 2101		UACCGCAU A UGGUAUCC	383		2085
AUCCCUCA A CCUACAAU 386 ATTGTAGG GGCTAGCTACAACGA TGAGGGAT 2088 1636 CUCAACCU A CAAUCAAG 387 CTTGATTG GGCTAGCTACAACGA AGGTTGAG 2089 1639 AACCUACA A UCAAGUGG 388 CCACTTGA GGCTAGCTACAACGA TGTAGGTT 2090 1644 ACAAUCAA G UGGUUCUG 389 CAGAACCA GGCTAGCTACAACGA TTGATTGT 2091 1647 AUCAAGUG G UUCUGGCA 390 TGCCAGAA GGCTAGCTACAACGA CACTTGAT 2092 1653 UGGUUCUG G CACCCCUG 391 CAGGGGTG GGCTAGCTACAACGA CAGAACCA 2093 1655 GUUCUGGC A CCCCUGUA 392 TACAGGGG GGCTAGCTACAACGA CAGAACCA 2094 1661 GCACCCCU G UAACCAUA 393 TATGGTTA GGCTAGCTACAACGA AGGGGTGC 2095 1664 CCCCUGUA A CCAUAAUC 394 GATTATGG GGCTAGCTACAACGA TACAGGGG 2096 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA TACAGGGG 2097 1670 UAACCAUA A UCAUUCCG 396 CGGAATGA GGCTAGCTACAACGA TATGGTTA 2098 1673 CCAUAAUC A UACCGAAG 397 CTTCGGAA GGCTAGCTACAACGA TATGGTTA 2098 1681 AUUCCGAAG CAAGGUGU 398 ACACCTTG GGCTAGCTACAACGA TTCGGAAT 2100 1686 GAAGCAAG G UGUGACUU 399 AAGTCACA GGCTAGCTACAACGA CTTGCTTC 2101			384	GAGGGATA GGCTAGCTACAACGA CATATGCG	2086
1636 CUCAACCU A CAAUCAAG 387 CTTGATTG GGCTAGCTACAACGA AGGTTGAG 2089 1639 AACCUACA A UCAAGUGG 388 CCACTTGA GGCTAGCTACAACGA TGTAGGTT 2090 1644 ACAAUCAA G UGGUUCUG 389 CAGAACCA GGCTAGCTACAACGA TTGATTGT 2091 1647 AUCAAGUG G UUCUGGCA 390 TGCCAGAA GGCTAGCTACAACGA CACTTGAT 2092 1653 UGGUUCUG G CACCCCUG 391 CAGGGGTG GGCTAGCTACAACGA CAGAACCA 2093 1655 GUUCUGGC A CCCCUGUA 392 TACAGGGG GGCTAGCTACAACGA GCCAGAAC 2094 1661 GCACCCCU G UAACCAUA 393 TATGGTTA GGCTAGCTACAACGA AGGGGTGC 2095 1664 CCCCUGUA A CCAUAAUC 394 GATTATGG GGCTAGCTACAACGA TACAGGGG 2096 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA TACAGGGG 2097 1670 UAACCAUA A UCAUUCCG 396 CGGAATGA GGCTAGCTACAACGA TATGGTTA 2098 1673 CCAUAAUC A UACCGAAG 397 CTTCGGAA GGCTAGCTACAACGA GATTATGG 2099 1681 AUUCCGAAG CAAGGUGU 398 ACACCTTG GGCTAGCTACAACGA TTCGGAAT 2100 1686 GAAGCAAG G UGUGACUU 399 AAGTCACA GGCTAGCTACAACGA CTTGCTTC 2101			385	TTGAGGGA GGCTAGCTACAACGA ACCATATG	2087
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1647 AUCAAGUG G UUCUGGCA 390 TGCCAGAA GGCTAGCTACAACGA CACTTGAT 2092 1653 UGGUUCUG G CACCCCUG 391 CAGGGGTG GGCTAGCTACAACGA CAGAACCA 2093 1655 GUUCUGGC A CCCCUGUA 392 TACAGGGG GGCTAGCTACAACGA GCCAGAAC 2094 1661 GCACCCCU G UAACCAUA 393 TATGGTTA GGCTAGCTACAACGA AGGGGTGC 2095 1664 CCCCUGUA A CCAUAAUC 394 GATTATGG GGCTAGCTACAACGA TACAGGGG 2096 1667 CUGUAACC A UAAUCAUU 395 AATGATTA GGCTAGCTACAACGA GGTTACAG 2097 1670 UAACCAUA A UCAUUCCG 396 CGGAATGA GGCTAGCTACAACGA TATGGTTA 2098 1673 CCAUAAUC A UUCCGAAG 397 CTTCGGAA GGCTAGCTACAACGA GATTATGG 2099 1681 AUUCCGAA G CAAGGUGU 398 ACACCTTG GGCTAGCTACAACGA TTCGGAAT 2100 1686 GAAGCAAG G UGUGACUU 399 AAGTCACA GGCTAGCTACAACGA CTTGCTTC 2101					2090
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1703 UUGUUCCA A UAAUGAAG 403 CTTCATTA GGCTAGCTACAACGA TGGAACAA 2105				 	
1706 UUCCAAUA A UGAAGAGU 404 ACTCTTCA GGCTAGCTACAACGA TATTGGAA 2106	\vdash				
1713 AAUGAAGA G UCCUUUAU 405 ATAAAGGA GGCTAGCTACAACGA TCTTCATT 2107					
1720 AGUCCUUU A UCCUGGAU 406 ATCCAGGA GGCTAGCTACAACGA AAAGGACT 2108					
1727 UAUCCUGG A UGCUGACA 407 TGTCAGCA GGCTAGCTACAACGA CCAGGATA 2109					
1729 UCCUGGAU G CUGACAGC 408 GCTGTCAG GGCTAGCTACAACGA ATCCAGGA 2110					2110
1733 GGAUGCUG A CAGCAACA 409 TGTTGCTG GGCTAGCTACAACGA CAGCATCC 2111				TGTTGCTG GGCTAGCTACAACGA CAGCATCC	2111
1736 UGCUGACA G CAACAUGG 410 CCATGTTG GGCTAGCTACAACGA TGTCAGCA 2112					2112
1739 UGACAGCA A CAUGGGAA 411 TTCCCATG GGCTAGCTACAACGA TGCTGTCA 2113					2113
1741 ACAGCAAC A UGGGAAAC 412 GTTTCCCA GGCTAGCTACAACGA GTTGCTGT 2114	1741	ACAGCAAC A UGGGAAAC	412	GTTTCCCA GGCTAGCTACAACGA GTTGCTGT	2114

1748 CAUGGGAA A CRGABUUG 413 CARTTETG GGCTRGCTRACAGGG TTCCCATG 2115 1750 AAUUGAGA G CAUCACUC 415 GAGTGATG GGCTAGCTRACAGGG TCTCAATT 2117 1760 AAUUGAGA G CAUCACUC 415 GAGTGATG GGCTAGCTRACAGGA TCTCAATT 2117 1765 AGGCAGC A UCACUGGG 416 CTGAGTGA GGCTGAGCTACAAGGA CCTCTCAA 2118 1765 AGGCAGCA G CUCUCAGGG 416 CTGAGTGA GGCTGAGCTACAAGGA GCTGTCAA 2118 1776 CACCAGGG G CAUGGGC 418 GCCCATGGG GGCTAGCTACAAGGA ATGAGTGAT 2120 1777 CACCAGGG C CAUGGGC 418 TYRCCATTG GGCTAGCTACAAGGA GCTGAGTG 2121 1777 CACCAGGG G CAUGGGCA 419 TYRCCATTG GGCTAGCTACAAGGA GCTGAGTG 2121 1777 CACCAGGG G CAUGAGGA 419 TYRCCATTG GGCTAGCTACAAGGA GCTGGAGT 2121 1777 AGCGCAUG G CAAUNAUA 421 TATTATTG GGCTAGCTACAAGGA CATGGGCT 2123 1798 GCAUGGGA A UAAUAAGAA 422 TTCTATTA GGCTAGCTACAAGGA CATGGGCT 2124 1797 AGCGCAUG G CAAUNAUA 421 TATTATTG GGCTAGCTACAAGGA TCGCCATGC 2124 1797 AGGAAAGA A UAAUAAGA 422 TTCTATTA GGCTAGCTACAAGGA TCGCCATGC 2124 1798 AGGAAAGA A UAAUAAGA 423 TCCTTCTA GGCTAGCTACAAGGA TCTTTCCT 2126 1804 AUAAAAGAG A UAAUAAGA 424 CCATCTTA GGCTAGCTACAAGGA TCTTTCCT 2126 1804 AUAAAAGAG G CACCUUG 425 GCTAGCCA GGCTAGCTACAAGGA TCTTTCCT 2127 1804 AUAAAAGAG G CACCUUG 427 CAAAGGTG GGCTAGCTACAAGGA TCATCTATT 2128 1804 AUAAAAGAG G CACCUUG 427 CAAAGGTG GGCTAGCTACAAGGA TCATCTTCT 2128 1804 AUAACAAGA GGCTAGCTACAAGGA CACCCACCA 2139 1816 GCACCUUG G UUGCUGAC 429 AGCCACAA GGCTAGCTACAAGGA CACCCACCA 2131 1816 GCACCUUG G UUGCUGAC 430 GTCAGCCA GGCTAGCTACAAGGA CAACCACCA 2134 1822 UGGUGUGA CUCUAGAA 433 TCCAGAGA GGCTAGCTACAAGGA CACCACCA 2134 1824 GAUCUAGA A UUUCUGAA 433 TCCAGAGA GGCTAGCTACAAGGA CACCACCA 2134 1824 GAUCUACA AUAACAGG GCTAGCTACAAGGA CACCACCA 2134 1834 GAUCUACA AUAACAGG A GAGAAGGA A CACAAGGA 2136 TATGGAAAGA GGCTAGCTACAAGGA CACCACCA 2136 1834 GAGAACAGA A CAUCUAGA 433 TCCAGAGA GGCTAGCTACAAGGA CACCACACA 2136 1834 GAGAACAGA A C				
1760 ANUUGAGA G CAUCACUCA 415 GAGTGATG GGCTAGCTACAACGA TCTCANTT 1762 UUGAGAGCA UCACUCAG 416 CTGAGTGA GGCTAGCTACAACGA GATGCTCT 2118 1765 AGAGCAUCA & UCUCAGCCC 417 GCGCTGAGG GGCTAGCTACAACGA GATGCTCT 2120 1772 CACUCAGC G CAUGAGCA 417 GCGCTGAGG GGCTAGCTACAACGA GATGCTCT 2120 1773 CACUCAGC G CAUGAGCA 418 GCCATGCU GGCTAGCTCACACGA GATGCTCT 2121 1774 CUCAGCCC A UGGCAAA 419 TTGCCCATG GGCTAGCACCAACAGA GCGCTAGAGT 2120 1777 CACUCAGC G CAUGACAA 419 TTGCCATG GGCTAGCACCAACAGA GCGCTAGA 2121 1777 CACGCATG G CANUANUA 421 TATTATTO GGCTAGCTACAACAGA GCGCTAGA 2121 1777 AGCGCATG G CANUANUA 421 TATTATTO GGCTACACCACA GCGCTAGA 2121 1778 UGGCAAUA A UAGABAGAA 422 TTCTATTA GGCTAGCTACAACAGA ATTATGCCA 2123 1778 UGGCAAUA A UAGABAGAA 423 TCCTTCTA GGCTAGCTACAACAGA ATTATGCCA 2123 1779 AGGACATG A UAGABAGGA 423 TCCTTCTA GGCTAGCTACAACGA TATTGCCA 2124 1778 UGGCAAUA A UAGABAGGA 423 TCCTTCTA GGCTAGCTACAACGA TATTGCCA 2126 1804 AURAGAUGG 425 GCTAGCCA GGCTAGCTACAACGA TATTGCCA 2126 1804 AURAGAUGG 425 GCTAGCCA GGCTAGCTACAACGA TATTGCCA 2126 1804 AURAGAUGG 427 CCAAGGTG GGCTAGCTACAACGA CATCTTTC 2127 1804 AURAGAUGG C CACCUUGG 426 GGTGCTAG GGCTAGCTACAACGA CATCTTTC 2128 1809 GAUGGCUG A CCCUUGGU 428 AACCAAGG GGCTAGCTACAACGA CATCTCTAT 2128 1819 CCUUGGUU G UGGCUGAC 426 AGCACACA GGCTAGCTACAACGA ATACCAACC 2131 1819 CCUUGGUU G UGGCUGAC 426 AGCACACA GGCTAGCTACAACGA AACCAACA 2131 1822 UGGUUGUG G CUGAGCUC 429 AGCACAA GGCTAGCTACAACGA AACCAACA 2131 1822 UGUGUUGUG G CUGAGCUC 429 AGCACAA GGCTAGCTACAACGA AACCAACA 2131 1822 UGUGUUGUG G CUGACUU 429 AGCACAA GGCTAGCTACAACGA AACCAACA 2131 1824 UUUCUGGAA UUUCUGGAA 433 TCCAGAAA GGCTAGCTACAACGA AACCAACA 2131 1824 UUUCUGGAA UUUCUGGAA 433 TCCAGAAA GGCTAGCTACAACGA AACCAACCA 2134 1834 ACCAAGAC A131 1834 AUCUACAGUU A CAUGACUU AA AACCAAGCA ATAGCAACA 2135 1844 UUCUCGGAA UUUCUGGAA 433 TCCAGAAA GGCTAGCTACAACGA AACCAACCA 2135 1849 GAAUCCAC A UUACAGUU AA AACCAACA AACCAACA 2135 1849 GAAUCCAC A UAAAGUUG AAACCAACA 231 AACCAAGA GGCTAGCTACAACAA AACCAACA 2135 1849 GAAUCCAC A UAAAGUUG AAACCAACA 231 AACCAACA GGCTAGCTACAACAA AACCAACA 2136 1849 GAAUCCAC A		CAUGGGAA A CAGAAUUG		
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1765 AGAGCAUC A CUCAGCOC 417 GCGCTGAG GGCTAGCTACAACGA GATGCTCT 2119 1770 AUCACUCA G CGCAUGGCA 418 GCCATGGG GGCTAGCTACAACGA TGAGTGAT 2120 1772 CACUCAGC G CAUGGCAA 419 TTGCCATG GGCTAGCTACAACGA GGCTGAGTT 2120 1774 CUCAGCOC A UGGCAAUA 420 TATTGCCATG GGCTAGCTACAACGA GCGCTGAGT 2122 1777 AGCGCAUG G CAAUAAUA 421 TATTATTG GGCTAGCTACAACGA GCGCTGAG 2122 1777 AGCGCAUG G CAAUAAUA 421 TATTATTG GGCTAGCTACAACGA CATGCGCT 2123 1788 GCAUGGCA A UAAUAAGAA 422 TTCTATTA GGCTAGCTACAACGA CATGCGATC 2125 1789 UGGCAAUA A UAGAAGGA 422 TCCTTCTA GGCTAGCTACAACGA TATTGCCA 2125 1795 AGGAACGA A UAAGAUGG 424 CCATCTTA GGCTAGCTACAACGA TATTGCCA 2125 1890 AGGAACGA A UAAGAUGG 424 CCATCTTA GGCTAGCTACAACGA TATTGCCA 2125 1801 AGAACAGA G CACCUUGG 425 GCTAGCCA GGCTAGCTACAACGA CATCATTT 2128 1808 GAUGGCUA G CACCUUGG 427 CCAAGGTG GGCTAGCTACAACGA CATCATTT 2128 1810 AGAACAGA G GACCUUGG 427 CCAAGGTG GGCTAGCTACAACGA CATCATTAT 2128 1811 UGGCUAGC A CCUUGGGU 427 CCAAGGTG GGCTAGCTACAACGA CATCATCAT 2129 1812 UGGUUGUG U GUGCUGAC 430 GTCAGCCA GGCTAGCTACAACGA CATCACCA 2131 1822 UGGUUGUG U GUGCUGAC 430 GTCAGCCA GGCTAGCTACAACGA CACCAACCA 2131 1822 UGGUUGUG U GUGCUGAC 430 GTCAGCCA GGCTAGCTACAACGA CACCAACCA 2131 1824 UUUCUGGA A UUCUGGAA 432 TTCTAGAG GGCTAGCTACAACGA CACCAACCA 2134 1834 ACUCUAGA A UUCUGGAA 432 TTCTAGAG GGCTAGCTACAACGA CACCAACCA 2134 1847 UGGAAUCU A CAUUUCUGA 433 TCCAGAGA GGCTAGCTACAACGA CACCAACCA 2134 1849 GAAUCUAC A UUUCUGGA 435 TGCAAATG GGCTAGCTACAACGA CACCAACCA 2134 1841 UUUCUGGA A UUCUGGAA 432 TTCTAGAG GGCTAGCTACAACGA CACCAACCA 2136 1841 UUUCUGGA A UUCUCGAA 435 TGCAAATG GGCTAGCTACAACGA CACCAACCA 2136 1841 UUUCUGGA A UUCUGCAA 436 GACCAACGA CACCAACCA 2137 1849 GAAUCUAC A UUGGCAUA 436 GACCACGA GGCTAGCTACAACGA AAATGTAG 2136 1851 CCACCUUC A UAAGGCUUC 437 AAAGCTATG GGCTAGCTACAACGA AAATGTAG 2137 1849 GAAUCUAC A UAAGGCUU 437 AAAGCTATG GGCTAGCTACAACGA AAATGTAG 2137 1855 CCCACUUC A UAAGGCUUC 437 AAAGCTATG GGCTAGCTACAACGA AAATGTAG 2137 1859 UUCUGCAAU 400000000000000000000000000000000000	1760	AAUUGAGA G CAUCACUC	415	GAGTGATG GGCTAGCTACAACGA TCTCAATT 2117
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1772	1765	AGAGCAUC A CUCAGCGC	417	GCGCTGAG GGCTAGCTACAACGA GATGCTCT 2119
1774	1770		418	GCCATGCG GGCTAGCTACAACGA TGAGTGAT 2120
1777	1772	CACUCAGC G CAUGGCAA	419	TTGCCATG GGCTAGCTACAACGA GCTGAGTG 2121
1780	1774	CUCAGCGC A UGGCAAUA	420	TATTGCCA GGCTAGCTACAACGA GCGCTGAG 2122
1783 UGGCAMUA A UAGAAGGA 423 TCCTTCTA GGCTAGCTACAACGA TATTGCA 2125 1796 AGGAAGA A UAAGAUGG 424 CCATCTTA GGCTAGCTACAACGA TCTTTCCT 2126 1801 AGAAGAA G UGGCUAGC 425 GCTAGCCA GGCTAGCTACAACGA CTTTTCTC 2127 1804 AMAGAUG G CUAGCACC 426 GGTGCTAC GGCTAGCTACAACGA CTTTTCTC 2127 1808 GAUGGCUAG C CACCUUGG 427 CCAAGGTG GGCTAGCTACAACGA CTTCTTT 2128 1808 GAUGGCUA G CACCUUGGU 428 AACCAAGG GGCTAGCTACAACGA CTACCCAT 2129 1810 UGGCUAGC A CCUUGGUU 428 AACCAAGG GGCTAGCTACAACGA CTAGCCAT 2129 1816 GCACCUUG G UGGUGGC 429 AGCCACA GGCTAGCTACAACGA CAAGGGC 2131 1819 CCUUGGUU G UGGCUGAC 430 GTCAGCCA GGCTAGCTACAACGA CAAGGGC 2131 1822 UGGUUGGU G UGGCUGAC 431 AGAGTCAG GGCTAGCTACAACGA CACAACGA 2132 1822 UGGUUGGU G UGGCUGAC 431 AGAGTCAG GGCTAGCTACAACGA CACAACCA 2134 1824 ACUCUAGA A UUUCUGGA 432 TCCAGAAA GGCTAGCTACAACGA CACAACCA 2134 1834 ACUCUAGA A UUUCUGGA 433 TCCAGAAA GGCTAGCTACAACGA CACAACCA 2136 1843 UUUCUGGA A UUUCUGGA 435 TGCAAATG GGCTAGCTACAACGA TCCAGAAA 2136 1844 UUUCUGGA A UUUGCACAU 434 AAAGTTAGA GGCTAGCTACAACGA AGATTCCA 2137 1849 GAADCUA C AUUUGCA 435 TGCAAATG GGCTAGCTACAACGA AGATTCCA 2137 1849 GAAUCUAC A UUUGCACU 436 GAAGCTA GGCTAGCTACAACGA AGATTCCA 2137 1853 UUUCUAGA A UUUGCACU 436 GAAGCTA GGCTAGCTACAACGA AGATTCCA 2137 1853 UUUCUAGA G CUUCCAAU 439 AATTGGAA GGCTAGCTACAACGA AGATTCCA 2137 1855 ACAUUUG A UAAGCUUC 438 GGAAGCTA GGCTAGCTACAACGA AGATTCCA 2141 1858 UUUGCAUTA G CUUCCAAU 439 ATTGGAA GGCTAGCTACAACGA TATGCAAA 2141 1865 AGCUUCCA A UAAAGUU 440 CAACTTTA GGCTAGCTACAACGA TATGCAAA 2141 1866 AGCUUCCA A UAAAGUU 440 CAACTTTA GGCTAGCTACAACGA TATGCAAA 2141 1879 UUGGGACU G UGGGAAGA 441 AGTCCCAA GGCTAGCTACAACGA TATGCAAA 2141 1879 UUGGGACU G UGGGAAGA 442 TCCCCACA GGCTAGCTACAACGA TATGCAAA 2141 1879 UUGGGACU A UAAAGGUU 444 AGCTTATG GGCTAGCTACAACGA TATGCAAC 2145 1889 GGAAGAA A CUUAGAGU 444 AGCTTATG GGCTAGCTACAACGA TATGCATAA 2141 1891 GAACAACA CUUCCAAU 446 AGCTTATG GGCTAGCTACAACGA TATGTCAAC 2146 1891 GAACAACA CUUCCAAU 446 AGCTTATG GGCTAGCTACAACGA TTTTTCC 2146 1891 GAACAACA CUUCCAAU 446 AGCTTATG GGCTAGCTACAACGA TTTTTTCC 2146 1891 GAACAACA CUUCCAAU 4	1777	AGCGCAUG G CAAUAAUA	421	TATTATTG GGCTAGCTACAACGA CATGCGCT 2123
1796	1780	GCAUGGCA A UAAUAGAA	422	TTCTATTA GGCTAGCTACAACGA TGCCATGC 2124
1801	1783	UGGCAAUA A UAGAAGGA	423	TCCTTCTA GGCTAGCTACAACGA TATTGCCA 2125
1804 AURAGAUG G CUAGCACC 426 GGTGCTAG GGCTAGCTACAACGA CATCTTAT 2128 1808 GAUGGCUA G CACCUUGG 427 CCAAGGTG GGCTAGCTACAACGA TAGCCATC 2129 1810 UGGCUAGC A CCUUGGUU 428 AACCAAGG GGCTAGCTACAACGA GCTAGCTAC 2130 1816 GCACCUUG G UUGGGGCU 429 AGCCACAA GGCTAGCTACAACGA CAAGGTGC 2131 1819 CCUUGGUU G UGGCUGAC 430 GTCAGCCA GGCTAGCTACAACGA CAACAACGA 2132 1822 UGGUUGUG G UUGGCUGAC 431 AGAGTCAG GGCTAGCTACAACGA CAACCACCA 2134 1826 UUGUGGUU A CUCUAGAA 432 TTCTAGAG GGCTAGCTACAACGA CAGCACCA 2134 1826 UUUCUGGA 432 TTCTAGAG GGCTAGCTACAACGA CAGCCAC 2134 1834 ACUCUAGAA 1832 TTCCAGAAA GGCTAGCTACAACGA CAGCCAC 2134 1843 UUUCUGGA A UUUACAUU 434 AATGTAGA GGCTAGCTACAACGA TCCAGAGA 2136 1847 UUGAAUCU A CAUUUGCA 435 TGCAAAAT GGCTAGCTACAACGA TCCAGAAA 2136 1847 UUGAAUCU CAUUUGCA 435 TGCAAATG GGCTAGCTACAACGA AGTACCAC 2137 1849 GAAUCUAC A UUUGCAUA 436 TATGCAAA GGCTAGCTACAACGA AGATTCCA 2137 1858 UUUGCAUA CAUUUCCAU 437 AAGCTATG GGCTAGCTACAACGA AAATGTAC 2139 1858 UUUGCAUA CAUUCCAAU 439 GAAAGCTA GGCTAGCTACAACGA AAATGTAC 2140 1858 AAGCUUCCA UAAAGUUG 439 AATGGAAG GGCTAGCTACAACGA AAATGTAC 2141 1870 CCAAUAAA UUGGGACU 441 AGTCCCAA GGCTAGCTACAACGA TATGCAAA 2141 1870 CCAAUAAA UUGGGACU 441 AGTCCCAA GGCTAGCTACAACGA TATTCCAA 2141 1870 CCAAUAAA UUGGGACU 442 TCCCACAG GGCTAGCTACAACGA CCCAACTT 2144 1870 CCAAUAAA UUGGGACU 444 AGCTTATG GGCTAGCTACAACGA TTTATTGC 2143 1879 UUGGGACU GUGGAAGA 442 TCCTCCAACG GGCTAGCTACAACGA AGTCCCAACTT 2144 1870 CCAAUAAA UUGCACAGA 444 TCCTCCAACGA GGCTAGCTACAACGA AGTCCCAACTT 2146 1891 GAAGAAAC UAAGCUUU 445 AAAGCTTA GGCTAGCTACAACGA CCCAACTT 2147 1895 AAACAUAA CUUUUAUA 446 TATTAAAAG GGCTAGCTACAACGA AGTCCCAA 2147 1891 GAAGAAAC UAACCCAA 447 TCTTCCCA GGCTAGCTACAACGA AGTCCTAC 2146 1891 GAAGAAAC UAACCCAA 447 TCTTCCCA GGCTAGCTACAACGA AGTCCTACACGA 1548 1591	1796	AGGAAAGA A UAAGAUGG	424	CCATCTTA GGCTAGCTACAACGA TCTTTCCT 2126
1808	1801		425	GCTAGCCA GGCTAGCTACAACGA CTTATTCT 2127
1810	1804	AUAAGAUG G CUAGCACC	426	GGTGCTAG GGCTAGCTACAACGA CATCTTAT 2128
1816 GCACCUUG G UUGUGGCU 429 AGCCACAA GGCTAGCTACAACGA CAAGGTCC 2131 1819 CCUUGGUU G UGGCUGAC 430 GTCAGCCA GGCTAGCTACAACGA AACCAAGG 2132 1822 UGGUUGUG G COGACUCU 431 AGAGTCAG GGCTAGCTACAACGA CACAACCA 2133 1826 UGUUGGCUG A CUCUAGAA 432 TTCTAGAG GGCTAGCTACAACGA CAGACCAC 2134 1834 ACUCUAGA A UUUCUGGA 433 TCCAGAAA GGCTAGCTACAACGA CAGACCAC 2134 1843 UUUCUGGA A UCUACAUU 434 AATGTAGA GGCTAGCTACAACGA TCCAGAAA 2135 1843 UUUCUGGA A UCUACAUU 434 AATGTAGA GGCTAGCTACAACGA ACATTCCA 2137 1849 GAAUCUAC A CAUUUGCA 435 TGCAAATG GGCTAGCTACAACGA ACATTCCA 2137 1849 GAAUCUAC A UUUGCAUA 436 TATGGAAA GGCTAGCTACAACGA ACATTCCA 2137 1853 CUGCAUUU G CAUAGGUU 437 AAGCTATG GGCTAGCTACAACGA AAATGTAG 2138 1855 ACAUUUGC A UAGCUUCC 438 GGAAGCTA GGCTAGCTACAACGA AAATGTAG 2139 1858 UUUGCAUA G CUUCCAAU 439 ATTGGAAG GGCTAGCTACAACGA AAATGTAG 2141 1870 CCAAUAAA G UUGGGGAU 441 AGTCCCAA GGCTAGCTACAACGA TTATGCAAA 2141 1871 CCAAUAAA G UUGGGGAU 441 AGTCCCAA GGCTAGCTACAACGA TTATTTTG 2143 1876 AAGUUGGA A CUUUGAGA 442 TCCCACAG GGCTAGCTACAACGA ATTCCAA 2141 1879 UUGGGACU G UGGGAAGA 442 TCCCACAG GGCTAGCTACAACGA ATTCCCAA 2145 1889 GGGAAGAA A CUUAAGCUU 444 AGCTTATG GGCTAGCTACAACGA ATTCCCAA 2145 1891 GAAGAACA UAAAGCUU 444 AGCTTATG GGCTAGCTACAACGA ATTCCCAC 2146 1891 GAAGAACA UAAAGCUU 445 AAAGCTA GGCTAGCTACAACGA ATTCCCAC 2146 1891 GAAGAACA UAAAGCUU 445 AAAGCTA GGCTAGCTACAACGA ATTCCCAC 2146 1891 GAAGAACA UAAAGCUU 446 ACCTATG GGCTAGCTACAACGA ATTCCCAC 2147 1895 AAACAUAA G CUUUUAUA 446 TATAAAAG GGCTAGCTACAACGA ATTCTCCC 2146 1891 GAAGAACA UAAAGCUU 447 CTGTGATA GGCTAGCTACAACGA ATTAGTTT 2148 1901 AAGCUUUUA UA UACACGA 447 CTGTGATA GGCTAGCTACAACGA ATTAGTTT 2149 1903 GCUUUUAUA UA UACACGA 447 CTGTGATA GGCTAGCTACAACGA ATTAGTTT 2151 1914 ACAGAGGU G UGCCAAA 450 TTGTGCAC GGCTAGCT	1808	GAUGGCUA G CACCUUGG	427	CCAAGGTG GGCTAGCTACAACGA TAGCCATC 2129
1819 CCUUGGUU G UGGCUGAC 430 GTCAGCCA GGCTAGCTACAACGA AACCAAGG 2132 1822 UGGUUGUG G CUGACUCU 431 AGAGTCAG GGCTAGCTACAACGA CACAACCA 2134 1834 ACUCUAGAA 4122 TTCTAGAG GGCTAGCTACAACGA CAGCCACA 2134 1834 ACUCUAGAA UUUCUGGA 433 TCCAGAAA GGCTAGCTACAACGA TCTAGAGT 2135 1843 UUUCUGGA UUUCUGGA 434 AATGTAGA GGCTAGCTACAACGA TCCAGAAA 2136 1847 UUGCAGA UUUCUGCA 435 TGCAAATG GGCTAGCTACAACGA TCCAGAAA 2136 1847 UUGCAGA UUUGCALA 436 TATGCAAA GGCTAGCTACAACGA AGATTCC 2137 1849 GAAUCUAC UUUGCALA 436 TATGCAAA GGCTAGCTACAACGA AGATTCC 2138 1853 CUACAUUU G CUIGACUU 437 AAGCTATG GGCTAGCTACAACGA AGATTCC 2138 1853 CUACAUUU G CUIGACUU 439 AATGGAAG GGCTAGCTACAACGA AAATGTA 2139 1858 UUUGCALA GUCUCCAAU 439 AATGGAAG GGCTAGCTACAACGA ATATGCAAA 2141 1865 AGCUUCCA UUAAAGUUG 440 CAACTTTA GGCTAGCTACAACGA TATGCAAA 2141 1870 CCAAUAAGA GUGGGACU 441 AGTCCCAA GGCTAGCTACAACGA TATATGG 2143 1876 AAGUUGGG CUGUGGGACU 441 AGTCCCAA GGCTAGCTACAACGA TTTATTGG 2143 1879 UUGGGACU GUGGGAAGU 442 TCCACAG GGCTAGCTACAACGA CACACTT 2144 1899 GAGAAAAC AUAAGCUU 444 AGCTTATG GGCTAGCTACAACGA ACTCCCAA 2145 1899 GAGAAAAC AUAAGCUU 445 AAAGCTTA GGCTAGCTACAACGA ATTCTTCC 2146 1891 AAAGAAAA AUAAGCUU 445 AAAGCTTA GGCTAGCTACAACGA ATTCTTCC 2147 1895 AAACAAA AUAAGCUU 446 TATAAAAG GGCTAGCTACAACGA ATTATTTT 2148 1891 GAAGAAAC AUAAGCUU 447 AAAGCTTA GGCTAGCTACAACGA ATTATTTT 2149 1901 AAGCUUUA AUAUCACAG 447 CTGTGATA GGCTAGCTACAACGA ATTATTTT 2149 1901 AAGCUUUA AUAUCACAG 447 CTGTGATA GGCTAGCTACAACGA ATTATTTT 2149 1901 AAGCUUUA AUAUCACAG 448 ATTGTGA GGCTAGCTACAACGA ATAAAACC 2150 1914 ACAGADGU GUCCAAU 448 ATTGTGA GGCTAGCTACAACGA ATAAAACC 2150 1914 ACAGADGU GUCCAAU 449 CACATCTG GGCTAGCTACAACGA ATTATAAA 2151 1912 UCACAGAU AUGCAAAU 445 ATTGTGA GGC	1810	UGGCUAGC A CCUUGGUU	428	AACCAAGG GGCTAGCTACAACGA GCTAGCCA 2130
1822 UGGUUGUG G CUGAGUCU 431 AGAGTCAG GGCTAGCTACAACGA CACAACCA 2133 1826 UGUGGCUG A CUCUAGAA 432 TTCTAGAG GGCTAGCTACAACGA CAGCCACA 2134 1834 ACUCUAGA A UUUCUGGA 433 TCCAGAAA GGCTAGCTACAACGA TCTAGAGT 2135 1843 UUUCUGGA A UCUACAUU 434 AATGTAGA GGCTAGCTACAACGA TCTAGAGT 2136 1847 UGGAAUCU A CAUUUGCA 435 TGCAAATG GGCTAGCTACAACGA AGATTCCA 2137 1849 GAAUCUAC A UUUGCAUA 436 TATGCAAA GGCTAGCTACAACGA AGATTCA 2138 1853 CUACAUUU G CAUAGCUU 437 AAGCTATG GGCTAGCTACAACGA AAATGTA 2139 1855 ACAUUUGC A UAGCUUCC 438 GGAAGCTA GGCTAGCTACAACGA AAATGTA 2141 1865 AGCUUCCA A UAAAGUU 440 CAACTTA GGCTAGCTACAACGA TATGCAAA 2142 1870 CCAAUAAA G UUGGGACU 441 AGTCCCAA GGCTAGCTACAACGA TATATTGG 2143 1876 AAGUUGGG A CUGUGGGA 441 AGTCCCAA GGCTACCAACGA CATATTTTGG 2143 1879 UUGGAACU G UGGGAAGA 442 TCCCACA GGCTACCAACGA CATATTTTTTCC 2146 </td <td></td> <td></td> <td>429</td> <td>AGCCACAA GGCTAGCTACAACGA CAAGGTGC 2131</td>			429	AGCCACAA GGCTAGCTACAACGA CAAGGTGC 2131
1826	1819	CCUUGGUU G UGGCUGAC	430	GTCAGCCA GGCTAGCTACAACGA AACCAAGG 2132
1834 ACUCUAGA A UUUCUGGA 433 TCCAGAAA GGCTAGCTACAACGA TCTAGAGT 2135 1843 UUUCUGGA A UCUACAUU 434 AATGTAGA GGCTAGCTACAACGA TCCAGAAA 2136 1847 UGGAADUCU A CAUUUGCAU 435 TGCAAATG GGCTAGCTACAACGA TCCAGAAA 2136 1849 GAAUCUAC A UUUGCAUA 435 TGCAAATG GGCTAGCTACAACGA AGATTCCA 2137 1849 GAAUCUAC A UUUGCAUA 436 TATGCAAA GGCTAGCTACAACGA AAATGTAG 2137 1855 CUACAUUU G CAUAGCUU 437 AAGCTATG GGCTAGCTACAACGA AAATGTAG 2139 1855 ACAUUUGC A UAGCUUCC 438 GGAAGCTA GGCTAGCTACAACGA GCAAATGT 2140 1858 UUUGCAUA G CUUCCAAU 439 ATTGGAAG GGCTAGCTACAACGA CAAATGT 2140 1858 UUUGCAUA G CUUCCAAU 439 ATTGGAAG GGCTAGCTACAACGA TATGCAAA 2141 1865 AGCUUCCA A UAAAGUUG 440 CAACTTTA GGCTAGCTACAACGA TGGAAGCT 2142 1870 CCAAUAAA G UUGGGACU 441 AGTCCCAA GGCTAGCTACAACGA TTATTGG 2143 1879 UUGGGACU G UGGGAAGA 442 TCCCACAG GGCTAGCTACAACGA TTATTGG 2144 1879 UUGGGACU G UGGGAAGA 443 TCTTCCCA GGCTAGCTACAACGA TTATTGC 2146 1891 GAAGAAAC A UAAAGCUU 444 AGCTTATG GGCTAGCTACAACGA TTCTTCCC 2146 1891 GAAGAAAC A UAAAGCUU 445 AAAGCTTA GGCTAGCTACAACGA TTCTTCCC 2146 1891 GAAGAAAC A UAAGCUU 445 AAAGCTTA GGCTAGCTACAACGA TTCTTCCC 2146 1891 AAACAUAA G CUUUUAUA 446 TATAAAAG GGCTAGCTACAACGA TTTCTTCC 2147 1903 GCUUUUU A UAUCACAG 447 CTGTGATA GGCTAGCTACAACGA TTATGTT 2149 1903 GCUUUUUA A UCACAGAU 448 ATCTGTGA GGCTAGCTACAACGA ATAAAAGC 2150 1906 UUUAUAUCA A CAGAIGUG 449 CACATCTG GGCTAGCTACAACGA ATAAAAGC 2150 1910 UAUCACAG A UGUGCCAA 450 TTGGCACA GGCTAGCTACAACGA ATAAAAGC 2150 1911 UAAUCACAG A UGUGCCAA 450 TTGGCACA GGCTAGCTACAACGA ATCTGTG 2153 1914 ACAGAIGU G UGCCAAAU 451 ATTGGCAC GGCTAGCTACAACGA ATCTGTG 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA CTTTTGG 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ATCTGTG 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ATCTGTG 2154 1914 ACAGAIGU G UGCCAAAU 451 ATTTGGCAC GGCTAGCTACAACGA CTTTTGG 2155 1928 UGGUUUCA A UGUGCAAU 455 GAAGCCA GGCTAGCTACAACGA ATCTGTG 2155 1928 UGGUUUCA A UGUGAAA 457 CTCTCCG GGCTAGCTACAACGA ATCTGTG 2155 1928 UGGUUUCA A UGUGAAA 457 CTCTCCG GGCTAGCTACAACGA ATCTGTG 2156 1924 UCAAGAGU G UUAAAC			431	AGAGTCAG GGCTAGCTACAACGA CACAACCA 2133
1843 UUUCUGGA A UCUACADU 434 AATSTAGA GGCTAGCTACAACGA TCCAGAAA 2136 1847 UGGAAUCU A CAUUUGCA 435 TGCAAATG GGCTAGCTACAACGA AGATTCCA 2137 1849 GAAUCUAC A UUUGCAU 436 TATGCAAA GGCTAGCTACAACGA GGTAGATTC 2138 1853 CUACAUUU G CAUAGCUU 437 AAGCTATG GGCTAGCTACAACGA GTAGATTC 2138 1855 ACAUUUGC A UAGCUUCC 438 GGAAGCTA GGCTAGCTACAACGA GCAAATGT 2140 1858 UUUGCAUA G CUUCCAAU 439 ATTGGAAG GGCTAGCTACAACGA GCAAATGT 2140 1865 AGCUUCCA A UAAAGUUG 440 CAACTTTA GGCTAGCTACAACGA TATGCAAA 2141 1870 CCAAUAAA G UUGGGACU 441 AGTCCCAA GGCTAGCTACAACGA TTATTGG 2143 1876 AAGUUGGA A UGUGGGACU 441 AGTCCCAA GGCTAGCTACAACGA TTATTGG 2143 1879 UUGGGACU G UGGGAGA 442 TCCCACAG GGCTAGCTACAACGA TCTCCCA 2145 1889 GGAAAGAA A CAUAAGCU 444 AGCTTATG GGCTAGCTACAACGA TCTCCCA 2145 1891 GAAGAAAC A UAAGCUUU 445 AAAGCTTA GGCTAGCTACAACGA TTCTCCC 2146 1891 GAAGAAAC A UAAGCUUU 445 AAAGCTTA GGCTAGCTACAACGA TTCTCCC 2146 1891 GAAGAAAC A UAAGCUUU 445 AAAGCTTA GGCTAGCTACAACGA GTTCCTTC 2147 1895 AAACAUAA G CUUUUAUA 446 TATAAAAG GGCTAGCTACAACGA TTATGTTT 2148 1901 AAGCUUUU A UAUCACAGA 447 CTGGATA GGCTAGCTACAACGA ATAAAGCT 2149 1903 GCUUUUAU A UAUCACAGA 447 CTGGATA GGCTAGCTACAACGA ATAAAGCT 2150 1906 UUUAUAUC A CAGAUGUG 449 CACATCTG GGCTAGCTACAACGA ATAAAAGC 2150 1910 UUAUAUC A CAGAUGUG 449 CACATCTG GGCTAGCTACAACGA ATAAAAGC 2150 1911 UAUCACAGA A UGUGCCAA 450 TTGGCACA GGCTAGCTACAACGA ATATAAA 2151 1912 UCACAGAU G UGCCAAAU 451 ATTGGCACA GGCTAGCTACAACGA ATATAAA 2151 1914 ACAGAUG G UGCCAAAU 451 ATTGGCACA GGCTAGCTACAACGA ATATAAA 2151 1914 ACAGAUG G CCAAAUGG 452 CCATTTGG GGCTAGCTACAACGA ATCTGTG 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ATCTGTG 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ACCATTTGG 2155 1923 CCAAAUGG G UUUCAUGU 454 ACATGAAA GGCTAGCTACAACGA ATCTGT 2154 1924 CCGAAGAG G UUUCAUGU 455 AGTTACAA GGCTAGCTACAACGA ATCTGT 2156 1924 CGAAAAG G UUCAUGU 454 ACATGAAA GGCTAGCTACAACGA ATCTGT 2156 1924 CGAAAAAU G CCGACGA 459 CTGCGGC GGCTAGCTACAACGA ATTTTTCC 2160 1947 GAAAAAU G CUGAAAC 456 CTAGCGG GGCTAGCTACAACGA ATTTTTCC 2160 1947 GAAAAAU G CUGAAAC 466 GT	1826	UGUGGCUG A CUCUAGAA	432	TTCTAGAG GGCTAGCTACAACGA CAGCCACA 2134
1847 UGGAAUCU A CAUUUGCA 435 TGCAAATG GGCTAGCTACAACGA AGATTCCA 2137 1849 GAAUCUAC A UUUGCAUA 436 TATGCAAA GGCTAGCAACGA GTAGATTC 2138 1853 CUACAUUU G CAUAGCUU 437 AAGCTATG GGCTAGCAACGA AAATGTAG 2139 1855 ACAUUUGC A UAAGCUUC 438 GGAAGCTA GGCTAGCTACAACGA CAAATGT 2140 1858 UUUGCAUA G CUUCCAAU 439 ATTGGAA GGCTAGCTACAACGA TATGCAAC 12141 1865 AGCUUCA A UAAAGUUG 440 CAACTTA GGCTACAACGA TATATGAAC 2141 1867 AGCUUCA A UAAAGUUG 440 CAACTTA GGCTACAACGA TATATGGG 2142 1870 CCAAUAAA G UUGGGACU 441 AGTCCCAA GGCTACCAACGA TTATATGG 2145 1889 GAGAACA A UAAGCUU 444 AGCTTATG GGCTACAACGA ATTATTCCC 2146 18891 GAAGAAC A UAAGCUUU 445 AAAGCTTA GGCTACAACGA TTATGTTT 2147 1891 AAGCUUUU A UAUCACAG 447 CTGTGATA GGCTACAACGA TATAAAGCT 2147 1895 AAACALAA G CUUUUAUA 446 TATAAAAG GGCTAGCTACAACGA ATAAAAGCT 2150	1834	ACUCUAGA A UUUCUGGA	433	TCCAGAAA GGCTAGCTACAACGA TCTAGAGT 2135
1849 GAAUCUAC A UUUGCAUA 436 TATGCAAA GGCTAGCTACAACGA GTAGATTC 2138 1853 CUACAUUU G CAUAGCUU 437 AAGCTATG GGCTAGCTACAACGA AAATGTAG 2139 1855 ACAUUUGC A UAGCUUCC 438 GGAAGCTA GGCTAGCTACAACGA CAAATGT 2140 1858 UUUGCAUA G CUUCCAAU 439 ATTGGAAG GGCTAGCTACAACGA TATGCAAA 2141 1865 AGCUUCCA A UAAAGUUG 440 CAACTTTA GGCTAGCTACAACGA TATGCAAA 2141 1870 CCAAUAAA G UUGGGACU 441 AGTCCCAA GGCTAGCTACAACGA TATATGGAAG 2142 1870 CCAAUAAA G UUGGGACU 441 AGTCCCAA GGCTAGCTACAACGA TATATTGG 2143 1876 AAGUUGGG A CUGUGGGA 442 TCCCACAG GGCTAGCTACAACGA TATATTGG 2143 1879 UUGGGACU G UGGGAAGA 443 TCTTCCCA GGCTAGCTACAACGA CCCAACTT 2144 1879 UUGGGACU G UGGGAAGA 443 TCTTCCCA GGCTAGCTACAACGA TCTTCCC 2146 1891 GAAGAACA A UAAAGCUU 444 AGCTTATG GGCTAGCTACAACGA TTCTTCCC 2146 1891 GAAGAACA A UAAAGCUU 445 AAAGCTTA GGCTAGCTACAACGA TTCTTCCC 2147 1895 AAACAUAA G CUUUUAUU 445 AAAGCTTA GGCTAGCTACAACGA TTCTTCC 2147 1895 AAACAUAA G CUUUUAU 446 TATAAAAG GGCTAGCTACAACGA TTATGTT 2148 1901 AAGCUUUUA A UAUCACAG 447 CTGTGATA GGCTAGCTACAACGA ATAAAGCCT 2149 1903 GCUUUUAU A UACCACGAU 448 ATCTGTGA GGCTAGCTACAACGA ATAAAAGCC 2150 1906 UUUAUAUC A CAGAUGUG 449 CACATCTG GGCTAGCTACAACGA ATAAAAGC 2150 1910 UAUCACAG A UGUGCCAA 450 TTGGCACA GGCTAGCTACAACGA ATAAAAGC 2151 1911 UAUCACAG A UGUGCCAA 450 TTGGCACA GGCTAGCTACAACGA ATCTTGGA 2151 1912 UCACAGAU G UGCCAAAU 451 ATTTGGCA GGCTAGCTACAACGA ATCTTGTGA 2151 1914 ACAGAUGU G CCAAAUGG 452 CCATTTGG GGCTAGCTACAACGA ATCTTGTGA 2153 1914 ACAGAUGU G CCAAAUGU 453 GAAACCCA GGCTAGCTACAACGA ATCTTGTG 2154 1919 UGUGCCAA A UGGGUUC 453 GAAACCCA GGCTAGCTACAACGA ATCTTGTG 2154 1928 UGGGUUCA A UGUUCAUGU 454 ACATGAAA GGCTAGCTACAACGA ATCTTGTG 2154 1928 UGGGUUCA A UGUUCAUGU 455 AGTTAACA GGCTAGCTACAACGA ATGAACC 2155 1930 GGUUCAU G UUAACUU 455 AGTTAACA GGCTAGCTACAACGA ATGAACC 2155 1931 UCAUGUAA A UCGUGAAA 457 TTTCCAAG GGCTAGCTACAACGA ATGAACC 2156 1947 GAAAAAU G CCGACGGA 459 TTCTCCG GGCTAGCTACAACGA ATGAACC 2156 1947 GAAAAAU G CCGACGGA 459 TTCTCCG GGCTAGCTACAACGA ATGAACC 2166 1947 GAAAAAU G CCGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA ATGAACC 2166 1947 GAAAAAU G	1843	UUUCUGGA A UCUACAUU	434	AATGTAGA GGCTAGCTACAACGA TCCAGAAA 2136
1853 CUACADUU G CADAGCUU 437 AAGCTATG GGCTAGCTACAACGA AAATGTAG 2139 1855 ACAUUUGC A UAGCUUCC 438 GGAAGCTA GGCTAGCTACAACGA GCAAATGT 2140 1858 UUUGCAUA G CUUCCAAU 439 ATTGGAAG GGCTAGCTACAACGA TATGCAAA 2141 1865 AGGUUCCA A UAAAGUUG 440 CAACTTTA GGCTAGCTACAACGA TATGCAAA 2141 1870 CCAAUAAA G UUGGGACU 441 AGTCCCAA GGCTAGCTACAACGA TGGAAGCT 2142 1870 CCAAUAAA G UUGGGACU 441 AGTCCCAA GGCTAGCTACAACGA TTTATTGG 2143 1876 AAGUUGGG A CUGUGGGA 442 TCCCCACAG GGCTAGCTACAACGA CCCAACTT 2144 1879 UUGGGACU G UGGGAAGA 443 TCTTCCCA GGCTAGCTACAACGA AGTCCCAA 2145 1889 GGGAAGAA A CAUAACCU 444 AGCTTATG GGCTAGCTACAACGA ATTCTTCCC 2146 1891 GAAGAAAC A UAAGCUUU 445 AAAGCTTA GGCTAGCTACAACGA TTCTTCCC 2147 1895 AAACAUAA G CUUUUAUA 446 TATAAAAG GGCTAGCTACAACGA TTCTTCCC 2147 1901 AAGCUUUU A UAUCACAG 447 CTGTGATA GGCTAGCTACAACGA TTATGTTT 2148 1901 AAGCUUUU A UAUCACAG 447 CTGTGATA GGCTAGCTACAACGA ATAAAAGC 2150 1903 GCUUUUAUA UAUCACAG 449 CACATCTG GGCTAGCTACAACGA ATAAAAGC 2150 1906 UUUAUAUAC A CAGAUGUG 449 CACATCTG GGCTAGCTACAACGA ATAAAAGC 2150 1910 UAUCACAG A UGUGCCAA 450 TTGGCACA GGCTAGCTACAACGA ATAAAAGC 2151 1911 UAUCACAG A UGUGCCAA 450 TTGGCACA GGCTAGCTACAACGA ATCTGTGA 2152 1912 UCACAGAUG G UGCCAAAU 451 ATTTGGCA GGCTAGCTACAACGA ATCTGTGA 2152 1914 ACAGAUGU G UGCCAAAU 451 ATTTGGCA GGCTAGCTACAACGA ATCTGTGA 2153 1914 ACAGAUGU G CCAAAUGG 452 CCATTTTGG GGCTAGCTACAACGA ACTCTGT 2154 1919 UGUGCCAA A UGGGUUC 453 GAAACCCA GGCTAGCTACAACGA ACTCTGT 2154 1919 UGUGCCAA A UGGGUUC 453 GAAACCCA GGCTAGCTACAACGA ACTCTGT 2154 1923 CCAAAUGG G UUUCAUGU 454 ACATGAAA GGCTAGCTACAACGA ACTCTGT 2156 1928 UGGGUUCA UGUUAACU 455 AGTTAACA GGCTAGCTACAACGA ATCTGTG 2157 1930 GGUUUCAU A UGUAACU 455 AGTTAACA GGCTAGCTACAACGA ATCTGTG 2156 1928 UGGGUUCA UGUAACU 455 AGTTAACA GGCTAGCTACAACGA ATCTGTG 2156 1928 UGGGUUCA UGUAACU 456 CAAGTTAA GGCTAGCTACAACGA ATCTGTG 2160 1947 GAAAAAA A UGCCGACG 458 CGTCGGCA GGCTAGCTACAACGA ATGAACCC 2157 1931 GACUGAA A UGCCGACG 458 CGTCGGCA GGCTAGCTACAACGA ATTTTTC 2161 1951 AAAUGCCG A CGGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA ATTTTTCC 2160 1947 GAAAAAU G CCUAAAC 4	1847	UGGAAUCU A CAUUUGCA	435	TGCAAATG GGCTAGCTACAACGA AGATTCCA 2137
1855 ACAUUUGC A UAGCUUCC 438 GGAAGCTA GGCTAGCTACAACGA GCAAATGT 2140 1858 UUUGCAUA G CUUCCAAU 439 ATTGGAAG GGCTAGCTACAACGA TATGCAAA 2141 1865 AGCUUCCA A UAAAGUUG 440 CAACTTTA GGCTAGCTACAACGA TATGCAAA 2141 1870 CCAAUAAA G UUGGGACU 441 AGTCCCAA GGCTAGCTACAACGA TGGAAGCT 2142 1876 AAGUUGG A CUGUGGGA 442 TCCCACAG GGCTAGCTACAACGA TTTATTGG 2143 1876 AAGUUGG U UGGGAAGA 443 TCTTCCCA GGCTAGCTACAACGA AGTCCCAA 2145 1889 GGGAAGAA A CAUAAGCUU 444 AGCTTATG GGCTAGCTACAACGA AGTCCCAA 2145 1889 GGGAAGAA A CAUAAGCUU 445 AAAGCTTA GGCTAGCTACAACGA ATTCTTCC 2146 1891 GAAGAAAC A UAAGCUUU 445 AAAGCTTA GGCTAGCTACAACGA TTTATGTT 2147 1895 AAACAUAA G CUUUUAUA 446 TATAAAAG GGCTAGCTACAACGA TTATGTTT 2148 1901 AAGCUUUU A UAUCACAG 447 CTGTGATA GGCTAGCTACAACGA AAAAGCTT 2149 1903 GCUUUUAU A UCACAGAU 448 ATCTGTGA GGCTAGCTACAACGA ATAAAAGC 2150 1906 UUUAUAUC A CAGAUGUG 449 CACATCTG GGCTAGCTACAACGA ATAAAAGC 2150 1910 UAUCACAG A UGUCCAAA 450 TTGGCACA GGCTAGCTACAACGA ATCTGTGA 2153 1911 UCACAGAU G UGCCAAAU 451 ATTTGGCA GGCTAGCTACAACGA ATCTGTGA 2153 1914 ACAGAUGU G CCAAAUGG 452 CCATTTGG GGCTAGCTACAACGA ATCTGTGA 2153 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ACATCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ACATCTGG 2156 1928 UGGGUUCA A UUGCAAGU 454 ACATGAAA GGCTAGCTACAACGA ACATCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ACATCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ACATCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ACATCTGT 2156 1928 UGGGUUCA A UUUAACUU 455 AGTTAACA GGCTAGCTACAACGA ACATCTGT 2156 1928 UGGGUUCA A UUUAACUU 456 CAAGTTAA GGCTAGCTACAACGA ACATCTGT 2156 1930 GGUUUCAUG UUAACUUG 456 CAAGTTAA GGCTAGCTACAACGA ATGAACC 2157 1930 GGUUUCAU A UGUCAAGA 457 TTTCCAAG GGCTAGCTACAACGA ATTTTTCC 2160 1947 GAAAAAAU G CUUGAAAC 456 CAAGTTAA GGCTAGCTACAACGA ATTTTTCC 2160 1947 GAAAAAAU G CUUGAAAC 456 CAAGTTAA GGCTAGCTACAACGA ATTTTTCC 2160 1947 GAAAAAAU G CCGACGGA 459 TCCCTCCC GGCTAGCTACAACGA ATTTTTCC 2160 1947 GAAAAAAU G CCGACGA 459 TCCCTCCC GGCTAGCTACAACGA ACTCTCCT 2163 1951 AAAU	1849	GAAUCUAC A UUUGCAUA	436	TATGCAAA GGCTAGCTACAACGA GTAGATTC 2138
1858 UUUGCAUA G CUUCCAAU 439 ATTGGAAG GGCTAGCTACAACGA TATGCAAA 2141 1865 AGCUUCCA A UAAAGUUG 440 CAACTTTA GGCTAGCTACAACGA TGGAAGCT 2142 1870 CCAAUAAA G UUGGGACU 441 AGTCCCAA GGCTAGCTACAACGA TTTATTGG 2143 1876 AAGUUGGG A CUGUGGGA 442 TCCCACAG GGCTAGCTACAACGA CCCAACTT 2144 1879 UUGGGACU G UGGGAAGA 443 TCTTCCCA GGCTAGCTACAACGA AGTCCCCAA 2145 1889 GGAAGAAC A UAAGCUUU 445 AAAGCTTAT GGCTAGCTACAACGA TTTCTTC 2147 1891 GAAGAACA UAAGCUUU 445 AAAGCTTA GGCTAGCTACAACGA TTTCTTC 2147 1895 AAACAUAA G CUUUUUAU 446 TATAAAAG GGCTAGCTACAACGA TTTCTTT 2148 1901 AAGCUUUU A UAUCACAG 447 CTGTGATA GGCTACAACGA AAAAGCTT 2149 1906 UUUAUAUC A CAGAUGUG 449 CACATCTG GGCTAGCTACAACGA ATAAAAGC 2150 1910 UAUCACAG A UGUGCCAA 450 TTGGCACA GGCTAGCTACAACGA ATCTGTGA 2152 1912 UCACAGAU G UGCCAAAU 451 ATTTGGCAC GGCTAGCTACAACGA ATCTGTGA 2153 </td <td>1853</td> <td>CUACAUUU G CAUAGCUU</td> <td>437</td> <td>AAGCTATG GGCTAGCTACAACGA AAATGTAG 2139</td>	1853	CUACAUUU G CAUAGCUU	437	AAGCTATG GGCTAGCTACAACGA AAATGTAG 2139
1865 AGCUUCCA A UAAAGUUG 440 CAACTTTA GGCTAGCTACAACGA TGGAAGCT 2142 1870 CCAAUAAA G UUGGGACU 441 AGTCCCAA GGCTAGCTACAACGA TTTATTGG 2143 1876 AAGUUGGG A CUGUGGGA 442 TCCCACAG GGCTAGCTACAACGA CCCAACTT 2144 1879 UUGGGACU G UGGGAAGA 443 TCTTCCCA GGCTAGCTACAACGA AGTCCCAA 2145 1889 GGGAAGAA A CAUAAGCUU 445 AAAGCTTA GGCTACAACGA GTTCTCC 2146 1891 GAAGAAAC A UAAGCUUU 445 AAAGCTA GGCTACCAACGA GTTTCTCC 2147 1895 AAACAUAA G CUUUUAUA 446 TATAAAAG GGCTAGCTACAACGA ATTATGTTT 2148 1901 AAGCUUU A UAUCACAG 447 CTGTGATA GGCTAGCTACAACGA ATAAAGC 2150 1906 UUUAUAUC A CAGAUGUG 449 CACATCTG GGCTAGCTACAACGA ATAAAACC 2150 1910 UAUCACAGA UGUGCCAA 450 TTGGCACA GGCTAGCTACAACGA ATCTGTGA 2152 1912 UCACAGAUG G UGCCAAAU 451 ATTTGGCA GGCTACAACGA ATCTGTG 2153 1914 ACAGAUGU G UGCCAAAU 451 ATTTGGCAC GGCTACAACGA ATCTGTG 2153 <td>1855</td> <td>ACAUUUGC A UAGCUUCC</td> <td>438</td> <td>GGAAGCTA GGCTAGCTACAACGA GCAAATGT 2140</td>	1855	ACAUUUGC A UAGCUUCC	438	GGAAGCTA GGCTAGCTACAACGA GCAAATGT 2140
1870 CCAAUAAA G UUGGGACU 441 AGTCCCAA GGCTAGCTACAACGA TTTATTGG 2143 1876 AAGUUGGG A CUGUGGGA 442 TCCCACAG GGCTAGCTACAACGA CCCAACTT 2144 1879 UUGGGACU G UGGGAAGA 443 TCTTCCCA GGCTAGCTACAACGA AGTCCCAA 2145 1889 GGGAAGAA A CAUAAGCU 444 AGCTTATG GGCTAGCTACAACGA TTCTTCC 2146 1891 GAAGAACA A WAAGCUUU 445 AAAGCTTA GGCTAGCTACAACGA GTTTCTTC 2147 1895 AAACADAA G CUUUUAUA 446 TATAAAAG GGCTAGCTACAACGA ATAAAAGC 2149 1901 AAGCUUUU A WAUCACAG 447 CTGTGATA GGCTAGCAACGA AAAAGCTT 2149 1903 GCUUUUAU A UCACAGAU 448 ATCTGTGA GGCTACAACGA ATAAAAGC 2150 1906 UUUAUAUC A CAGAUGUG 449 CACATCTG GGCTACCAACGA CTGTGATA 2151 1910 UAUCACAGA U UGGCCAA 450 TTGGCACA GGCTACAACGA ATCTGTGA 2152 1912 UCACAGAUU G UGCCAAAU 451 ATTTGGCA GGCTACAACGA ATCTGTGA 2153 1914 ACAGAUGU G CCAAAUG 452 CCATTTGG GGCTACAACGA ACATCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ACATCTGT 2154 1928 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ATCAACCA 2155 1930	1858	UUUGCAUA G CUUCCAAU	439	ATTGGAAG GGCTAGCTACAACGA TATGCAAA 2141
1876 AAGUUGGG A CUGUGGGA 442 TCCCACAG GGCTAGCTACAACGA CCCAACTT 2144 1879 UUGGGACU G UGGGAAGA 443 TCTTCCCA GGCTAGCTACAACGA AGTCCCAA 2145 1889 GGGAAGAA A CAUAAGCU 444 AGCTTATG GGCTAGCTACAACGA TTCTTCCC 2146 1891 GAAGAACA A UAAGCUUU 445 AAAGCTTA GGCTAGCTACAACGA TTCTTCCC 2147 1895 AAACAUAA G CUUUUAUA 446 TATAAAAG GGCTAGCTACAACGA TTATGTTT 2148 1901 AAGCUUUU A UAUCACAG 447 CTGTGATA GGCTAGCAACGA AAAAGCTT 2149 1903 GCUUUUAU A UCACAGAU 448 ATCTGTGA GGCTAGCTACAACGA ATAAAAGC 2150 1906 UUUAUAUC A CAGAUGUG 449 CACATCTG GGCTAGCTACAACGA ATAAAAGC 2151 1910 UAUCACAG A UGUGCCAA 450 TTGGCACA GGCTAGCTACAACGA CTGTGATA 2152 1912 UCACAGAU G UGCCAAAU 451 ATTTGGCA GGCTAGCTACAACGA ATCTGTGA 2153 1914 ACAGAUGU G CCAAAUGG 452 CCATTTGG GGCTAGCTACAACGA ACTCTGTG 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ACTCTGT 2154 1919 UGUGCCAA A UGGGUUUC 454 ACATGAAA GGCTAGCTACAACGA CCATTTGG 2156 1928 UGGGUUUC A UGUUAACU 455 AGTTAACA GGCTAGCTACAACGA CCATTTGG 2156 1928 UGGGUUUC A UGUUAACU 455 AGTTAACA GGCTAGCTACAACGA ATCATGA 2157 1930 GGUUUCAU G UUAACUUG 456 CAAGTTAA GGCTAGCTACAACGA ATGAAACC 2157 1930 GGUUUCAU G UUAACUUG 456 CAAGTTAA GGCTAGCTACAACGA ATGAAACC 2158 1934 UCAUGUUA A CUUGGAAA 457 TTTCCAAG GGCTAGCTACAACGA ATGAAACC 2158 1945 UGGAAAAA A UGCCGACG 458 CGTCGGCA GGCTAGCTACAACGA TAACATGA 2159 1946 AAAAAAU G CCGACGGA 459 TCCGTCGG GGCTAGCTACAACGA ATTTTTCC 2161 1951 AAAUGCCG A CGGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA CGGCATTT 2162 1964 AGGAGAG A CUUGAAC 461 GTTTCAG GGCTAGCTACAACGA CTCTCCCT 2163 1971 GACCUGAA A CUGUCUUG 462 CAAGACAG GGCTAGCTACAACGA TTCAGCTC 2164 1974 CUGAAACU G UCUAGAC 463 GTGCAAGA GGCTAGCTACAACGA AGTTTCAG	1865	AGCUUCCA A UAAAGUUG	440	CAACTITA GGCTAGCTACAACGA TGGAAGCT 2142
1879 UUGGGACU G UGGGAAGA 443 TCTTCCCA GGCTAGCTACAACGA AGTCCCAA 2145 1889 GGGAAGAA A CAUAAGCU 444 AGCTTATG GGCTAGCTACAACGA TTCTTCC 2146 1891 GAAGAAC A UAAGCUUU 445 AAAGCTTA GGCTAGCTACAACGA GTTTCTTC 2147 1895 AAACAUAA G CUUUUAUA 446 TATAAAAG GGCTAGCTACAACGA TTATGTTT 2148 1901 AAGCUUUU A UAUCACAG 447 CTGTGATA GGCTAGCTACAACGA AAAAGCTT 2149 1903 GCUUUUAU A UCACAGAU 448 ATCTGTGA GGCTAGCTACAACGA ATAAAAGC 2150 1906 UUUAUAUC A CAGAUGUG 449 CACATCTG GGCTAGCTACAACGA ATAAAAGC 2151 1910 UAUCACAGA A UGUGCCAA 450 TTGGCACA GGCTAGCTACAACGA ATCTGTGA 2152 1912 UCACAGAU G UGCCAAAU 451 ATTTGGCA GGCTAGCTACAACGA ACATCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ACATCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA CCATTTGG 2156 1928 UGGGUUCA A UGUUAACU 454 ACATGAA GGCTACCAACGA ATGAACCA 2157<	1870	CCAAUAAA G UUGGGACU	441	AGTCCCAA GGCTAGCTACAACGA TTTATTGG 2143
1889 GGGAAGAA A CAUAAGCU 444 AGCTTATG GGCTAGCTACAACGA TTCTTCCC 2146 1891 GAAGAAAC A UAAGCUUU 445 AAAGCTTA GGCTAGCTACAACGA GTTTCTCC 2147 1895 AAACAUAA G CUUUUAUA 446 TATAAAAG GGCTAGCTACAACGA GTTTCTTC 2147 1901 AAGCUUUU A UAUCACAG 447 CTGTGATA GGCTAGCTACAACGA AAAAGCTT 2149 1903 GCUUUUAU A UCACAGAU 448 ATCTGTGA GGCTAGCTACAACGA AAAAGCTT 2149 1906 UUUAUAUC A CAGAUGUG 449 CACATCTG GGCTAGCTACAACGA ATAAAAGC 2150 1910 UAUCACAG A UGUGCCAA 450 TTGGCACA GGCTAGCTACAACGA CTGTGATA 2152 1912 UCACAGAU G UGCCAAAU 451 ATTTGGCA GGCTAGCTACAACGA ATCTGTGA 2153 1914 ACAGAUGU G CCAAAUGG 452 CCATTTGG GGCTAGCTACAACGA ATCTGTGA 2153 1914 ACAGAUGU G CCAAAUGG 452 CCATTTGG GGCTAGCTACAACGA ACATCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ACATCTGT 2154 1923 CCAAAUGG G UUUCAUGU 454 ACATGAAA GGCTAGCTACAACGA CCATTTGG 2156 1928 UGGGUUUC A UGUUAACU 455 AGTTAACA GGCTAGCTACAACGA CCATTTGG 2157 1930 GGUUUCAU G UUAACUUG 456 CAAGTTAA GGCTAGCTACAACGA ATGAAACC 2158 1934 UCAUGUUA A CUUGGAAA 457 TTTCCAAG GGCTAGCTACAACGA TAACATGA 2159 1945 UGGAAAAA A UGCCGACG 458 CGTCGGCA GGCTAGCTACAACGA TAACATGA 2159 1947 GAAAAAAU G CCGACGA 459 TCCGTCGG GGCTAGCTACAACGA ATTTTTCC 2160 1947 GAAAAAAU G CCGACGAA 459 TCCGTCGG GGCTAGCTACAACGA ATTTTTCC 2161 1951 AAAUGCCG A CGGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA ATTTTTCC 2161 1954 AGGAGAGG A CCUGAAAC 461 GTTTCAGG GGCTAGCTACAACGA CCTCTCCT 2163 1974 CUGAAACU G UCUUCCAC 463 GTGCAAGA GGCTAGCTACAACGA ATTTTTCC 2164 1974 CUGAAACU G UCUUCCAC 463 GTGCAAGA GGCTAGCTACAACGA ATTTTTCC 2164	1876	AAGUUGGG A CUGUGGGA	442	TCCCACAG GGCTAGCTACAACGA CCCAACTT 2144
1891 GAAGAAAC A UAAGCUUU 445 AAAGCTTA GGCTAGCTACAACGA GTTTCTTC 2147 1895 AAACAUAA G CUUUUAUA 446 TATAAAAG GGCTAGCTACAACGA TTATGTTT 2148 1901 AAGCUUUU A UAUCACAG 447 CTGTGATA GGCTAGCTACAACGA AAAAGCTT 2149 1903 GCUUUUAU A UCACAGAU 448 ATCTGTGA GGCTAGCTACAACGA AAAAGCTT 2149 1906 UUUAUAUUC A CAGAUGUG 449 CACATCTG GGCTAGCTACAACGA ATAAAAGC 2150 1910 UAUCACAG A UGUGCCAA 450 TTGGCACA GGCTAGCTACAACGA CTGTGATA 2152 1912 UCACAGAU G UGCCAAAU 451 ATTTGGCA GGCTAGCTACAACGA CTGTGATA 2153 1914 ACAGAUGU G CCAAAUGG 452 CCATTTGG GGCTAGCTACAACGA ATCTGTGA 2153 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ACATCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA CCATTTGG 2155 1923 CCAAAUGG G UUUCAUGU 454 ACATGAAA GGCTAGCTACAACGA CCATTTGG 2156 1928 UGGGUUUC A UGUUAACU 455 AGTTAACA GGCTAGCTACAACGA CCATTTGG 2157 1930 GGUUUCAU G UUAACUUG 456 CAAGTTAA GGCTAGCTACAACGA ATGAAACC 2158 1934 UCAUGUUA A CUUGGAAA 457 TTTCCAAG GGCTAGCTACAACGA TAACATGA 2159 1945 UGGAAAAA A UGCCGACG 458 CGTCGGCA GGCTAGCTACAACGA TTTTTCCA 2160 1947 GAAAAAAU G CCGACGA 459 TCCGTCGG GGCTAGCTACAACGA ATTTTTCC 2161 1951 AAAUGCCG A CGGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA CCGCATTT 2162 1964 AGGAGAGG A CCUGAAAC 461 GTTTCAGG GGCTAGCTACAACGA CCTCTCCT 2163 1971 GACCUGAA A CUGUCUUG 462 CAAGACAG GGCTAGCTACAACGA ATTTCAG 2164 1974 CUGAAACU G UCUUCCAC 463 GTGCAAGA GGCTAGCTACAACGA ATTTCAG 2164	1879	UUGGGACU G UGGGAAGA	443	TCTTCCCA GGCTAGCTACAACGA AGTCCCAA 2145
1895 AAACAUAA G CUUUUAUA 446 TATAAAAG GGCTAGCTACAACGA TTATGTTT 2148 1901 AAGCUUUU A UAUCACAG 447 CTGTGATA GGCTAGCTACAACGA AAAAGCTT 2149 1903 GCUUUUAU A UCACAGAU 448 ATCTGTGA GGCTAGCTACAACGA ATAAAAGC 2150 1906 UUUAUAUC A CAGAUGUG 449 CACATCTG GGCTAGCTACAACGA GATATAAA 2151 1910 UAUCACAG A UGUGCCAA 450 TTGGCACA GGCTAGCTACAACGA CTGTGATA 2152 1912 UCACAGAU G UGCCAAAU 451 ATTTGGCA GGCTAGCTACAACGA ATCTGTGA 2153 1914 ACAGAUGU G CCAAAUGG 452 CCATTTGG GGCTAGCTACAACGA ACTCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ACATCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA TTGGCACA 2155 1923 CCAAAUGG G UUUCAUGU 454 ACATGAAA GGCTAGCTACAACGA CCATTTGG 2156 1928 UGGGUUUCA UGUUAACCU 455 AGTTAACA GGCTAGCTACAACGA CCATTTGG 2157 1930 GGUUUCAU G UUAACCUU 456 CAAGTTAA GGCTAGCTACAACGA ATGAAACC 2158 1934 UCAUGUUA A CUUGGAAA 457 TTTCCAAG GGCTAGCTACAACGA ATGAAACC 2159 1945 UGGAAAAA A UGCCGACG 458 CGTCGGCA GGCTAGCTACAACGA TAACATGA 2159 1947 GAAAAAAU G CCGACGGA 459 TCCGTCGG GGCTAGCTACAACGA ATTTTTCC 2161 1951 AAAUGCCG A CGGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA ATTTTTTC 2161 1951 AAAUGCCG A CGGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA CCTCTCCT 2163 1971 GACCUGAA A CUGUCUUG 462 CAAGACAG GGCTAGCTACAACGA CCTCTCCT 2163 1974 CUGAAACU G UCUUGCAC 463 GTGCAAGA GGCTAGCTACAACGA ATTTAGGTC 2164	1889	GGGAAGAA A CAUAAGCU	444	AGCTTATG GGCTAGCTACAACGA TTCTTCCC 2146
1901 AAGCUUUU A UAUCACAG 447 CTGTGATA GGCTAGCTACAACGA AAAAGCTT 2149 1903 GCUUUUAU A UCACAGAU 448 ATCTGTGA GGCTAGCTACAACGA ATAAAAGC 2150 1906 UUUAUAUC A CAGAUGUG 449 CACATCTG GGCTAGCTACAACGA GATATAAA 2151 1910 UAUCACAG A UGUGCCAA 450 TTGGCACA GGCTAGCTACAACGA CTGTGATA 2152 1912 UCACAGAU G UGCCAAAU 451 ATTTGGCA GGCTAGCTACAACGA ATCTGTGA 2153 1914 ACAGAUGU G CCAAAUGG 452 CCATTTGG GGCTAGCTACAACGA ACATCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ACATCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA TTGGCACA 2155 1923 CCAAAUGG G UUUCAUGU 454 ACATGAAA GGCTAGCTACAACGA CCATTTGG 2156 1928 UGGGUUUC A UGUUAACU 455 AGTTAACA GGCTAGCTACAACGA GAAACCCA 2157 1930 GGUUUCAU G UUAACUUG 456 CAAGTTAA GGCTAGCTACAACGA ATGAAACC 2158 1934 UCAUGUUA A CUUGGAAA 457 TTTCCAAG GGCTAGCTACAACGA TAACATGA 2159 1945 UGGAAAAA A UGCCGACG 458 CGTCGGCA GGCTAGCTACAACGA TTTTTCCA 2160 1947 GAAAAAAU G CCGACGGA 459 TCCGTCGG GGCTAGCTACAACGA ATTTTTCC 2161 1951 AAAUGCCG A CGGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA CGGCATTT 2162 1964 AGGAGAGG A CCUGAAAC 461 GTTTCAGG GGCTAGCTACAACGA CTCTCCT 2163 1971 GACCUGAA A CUGUCUUG 462 CAAGACAG GGCTAGCTACAACGA TTCAGGTC 2164 1974 CUGAAACU G UCUUGCAC 463 GTGCAAGA GGCTAGCTACAACGA AGTTTCAG 2165	1891		445	AAAGCTTA GGCTAGCTACAACGA GTTTCTTC 2147
1903 GCUUUUAU A UCACAGAU 448 ATCTGTGA GGCTAGCTACAACGA ATAAAAGC 2150 1906 UUUAUAUC A CAGAUGUG 449 CACATCTG GGCTAGCTACAACGA GATATAAA 2151 1910 UAUCACAG A UGUGCCAA 450 TTGGCACA GGCTAGCTACAACGA CTGTGATA 2152 1912 UCACAGAU G UGCCAAAU 451 ATTTGGCA GGCTAGCTACAACGA ATCTGTGA 2153 1914 ACAGAUGU G CCAAAUGG 452 CCATTTGG GGCTAGCTACAACGA ACATCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ACATCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA TTGGCACA 2155 1923 CCAAAUGG G UUUCAUGU 454 ACATGAAA GGCTAGCTACAACGA CCATTTGG 2156 1928 UGGGUUUC A UGUUAACU 455 AGTTAACA GGCTAGCTACAACGA GAAACCCA 2157 1930 GGUUUCAU G UUAACUUG 456 CAAGTTAA GGCTAGCTACAACGA ATGAAACC 2158 1934 UCAUGUUA A CUUGGAAA 457 TTTCCAAG GGCTAGCTACAACGA TAACATGA 2159 1945 UGGAAAAA A UGCCGACG 458 CGTCGGCA GGCTAGCTACAACGA TTTTTCCA 2160 1947 GAAAAAAU G CCGACGGA 459 TCCGTCGG GGCTAGCTACAACGA ATTTTTTC 2161 1951 AAAUGCCG A CGGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA CGGCATTT 2162 1964 AGGAGAGG A CCUGAAAC 461 GTTTCAGG GGCTAGCTACAACGA CCTCTCCT 2163 1971 GACCUGAA A CUGUCUUG 462 CAAGACAG GGCTAGCTACAACGA ATTCAGGTC 2164 1974 CUGAAACU G UCUUGCAC 463 GTGCAAGA GGCTAGCTACAACGA AGTTTCAG 2165	1895	AAACAUAA G CUUUUAUA	446	
1906 UUUAUAUC A CAGAUGUG 449 CACATCTG GGCTAGCTACAACGA GATATAAA 2151 1910 UAUCACAG A UGUGCCAA 450 TTGGCACA GGCTAGCTACAACGA CTGTGATA 2152 1912 UCACAGAU G UGCCAAAU 451 ATTTGGCA GGCTAGCTACAACGA ATCTGTGA 2153 1914 ACAGAUGU G CCAAAUGG 452 CCATTTGG GGCTAGCTACAACGA ACATCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA ACATCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA TTGGCACA 2155 1923 CCAAAUGG G UUUCAUGU 454 ACATGAAA GGCTAGCTACAACGA CCATTTGG 2156 1928 UGGGUUUC A UGUUAACUU 455 AGTTAACA GGCTAGCTACAACGA GAAACCCA 2157 1930 GGUUUCAU G UUAACUUG 456 CAAGTTAA GGCTAGCTACAACGA ATGAAACC 2158 1934 UCAUGUUA A CUUGGAAA 457 TTTCCAAG GGCTAGCTACAACGA TAACATGA 2159 1945 UGGAAAAA A UGCCGACG 458 CGTCGGCA GGCTAGCTACAACGA TTTTTCCA 2160 1947 GAAAAAAU G CCGACGGA 459 TCCGTCGG GGCTAGCTACAACGA ATTTTTTC 2161 1951 AAAUGCCG A CGGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA CGGCATTT 2162 1964 AGGAGAG A CCUGAAAC 461 GTTTCAGG GGCTAGCTACAACGA CCTCTCCT 2163 1971 GACCUGAA A CUGUCUUG 462 CAAGACAG GGCTAGCTACAACGA TTCAGGTC 2164 1974 CUGAAACU G UCUUGCAC 463 GTGCAAGA GGCTAGCTACAACGA AGTTTCAG 2165	\vdash		447	CTGTGATA GGCTAGCTACAACGA AAAAGCTT 2149
1910 UAUCACAG A UGUGCCAA 150 TTGGCACA GGCTAGCTACAACGA CTGTGATA 1912 UCACAGAU G UGCCAAAU 151 ATTTGGCA GGCTAGCTACAACGA ATCTGTGA 1914 ACAGAUGU G CCAAAUGG 152 CCATTTGG GGCTAGCTACAACGA ACATCTGT 1919 UGUGCCAA A UGGGUUUC 153 GAAACCCA GGCTAGCTACAACGA ACATCTGT 1919 UGUGCCAA A UGGGUUUC 154 GAAACCCA GGCTAGCTACAACGA TTGGCACA 1918 UGGGUUUC A UGUUAACU 155 AGTTAACA GGCTAGCTACAACGA CCATTTGG 1928 UGGGUUUCA UGUUAACU 155 AGTTAACA GGCTAGCTACAACGA GAAACCCA 157 1930 GGUUUCAU G UUAACUUG 156 CAAGTTAA GGCTAGCTACAACGA ATGAAACC 158 1934 UCAUGUUA A CUUGGAAA 157 TTTCCAAG GGCTAGCTACAACGA TAACATGA 1954 UGGAAAAA A UGCCGACG 158 CGTCGGCA GGCTAGCTACAACGA TTTTTCCA 1960 1947 GAAAAAAU G CCGACGGA 159 TCCGTCGG GGCTAGCTACAACGA ATTTTTTC 161 1951 AAAUGCCG A CGGAAGGA 160 TCCTTCCG GGCTAGCTACAACGA CGGCATTT 1964 AGGAGAGG A CCUGAAAC 161 GTTTCAGG GGCTAGCTACAACGA CGGCATTT 1974 CUGAAACU G UCUUGCAC 163 GTGCAAGA GGCTAGCTACAACGA ATTTCAGGTC 1964 CUGAAACU G UCUUGCAC 163 GTGCAAGA GGCTAGCTACAACGA ATTTCAGGTC 1964 CUGAAACU G UCUUGCAC 163 GTGCAAGA GGCTAGCTACAACGA AGTTTCAGGTC 1974 CUGAAACU G UCUUGCAC 165 GTGCAAGA GGCTAGCTACAACGA AGTTTCAGGTC 1974 CUGAAACU G UCUUGCAC 165 CCACGACGA GGCTAGCTACAACGA AGTTTCAGGTC 1964 CUGAAACU G UCUUGCAC 166 GTCCAAGAA GGCTAGCTACAACGA AGTTTCAGGTC 1974 CUGAAACU G UCUUGCAC 167 GGCAAGAA GGCTAGCTACAACGA AGTTTCAG 1974 CUGAAACU G UCUUGCAC 167 GGCAAGAAAAAAAAAAAACAA AGTTTCAGAACAAACAA 167 GCCAAGAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA			448	ATCTGTGA GGCTAGCTACAACGA ATAAAAGC 2150
1912 UCACAGAU G UGCCAAAU 451 ATTTGGCA GGCTAGCTACAACGA ATCTGTGA 2153 1914 ACAGAUGU G CCAAAUGG 452 CCATTTGG GGCTAGCTACAACGA ACATCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA TTGGCACA 2155 1923 CCAAAUGG G UUUCAUGU 454 ACATGAAA GGCTAGCTACAACGA CCATTTGG 2156 1928 UGGGUUUC A UGUUAACU 455 AGTTAACA GGCTAGCTACAACGA GAAACCCA 2157 1930 GGUUUCAU G UUAACUUG 456 CAAGTTAA GGCTAGCTACAACGA ATGAAACC 2158 1934 UCAUGUUA A CUUGGAAA 457 TTTCCAAG GGCTAGCTACAACGA TAACATGA 2159 1945 UGGAAAAA A UGCCGACG 458 CGTCGGCA GGCTAGCTACAACGA TTTTTCCA 2160 1947 GAAAAAAU G CCGACGGA 459 TCCGTCGG GGCTAGCTACAACGA ATTTTTCC 2161 1951 AAAUGCCG A CGGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA CGGCATTT 2162 1964 AGGAGAG A CCUGAAAC 461 GTTTCAGG GGCTAGCTACAACGA CCTCTCCT 2163 1971 GACCUGAA A CUGUCUUG 462 CAAGACAG GGCTAGCTACAACGA AGTTTCAG 2164	 			
1914 ACAGAUGU G CCAAAUGG 452 CCATTTGG GGCTAGCTACAACGA ACATCTGT 2154 1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA TTGGCACA 2155 1923 CCAAAUGG G UUUCAUGU 454 ACATGAAA GGCTAGCTACAACGA CCATTTGG 2156 1928 UGGGUUUC A UGUUAACU 455 AGTTAACA GGCTAGCTACAACGA GAAACCCA 2157 1930 GGUUUCAU G UUAACUUG 456 CAAGTTAA GGCTAGCTACAACGA ATGAAACC 2158 1934 UCAUGUUA A CUUGGAAA 457 TTTCCAAG GGCTAGCTACAACGA TAACATGA 2159 1945 UGGAAAAA A UGCCGACG 458 CGTCGGCA GGCTAGCTACAACGA TTTTTCCA 2160 1947 GAAAAAAU G CCGACGGA 459 TCCGTCGG GGCTAGCTACAACGA ATTTTTCC 2161 1951 AAAUGCCG A CGGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA CGGCATTT 2162 1964 AGGAGAGG A CCUGAAAC 461 GTTTCAGG GGCTAGCTACAACGA CCTCTCCT 2163 1971 GACCUGAA A CUGUCUUG 462 CAAGACAG GGCTAGCTACAACGA AGTTTCAG 2164				
1919 UGUGCCAA A UGGGUUUC 453 GAAACCCA GGCTAGCTACAACGA TTGGCACA 2155 1923 CCAAAUGG G UUUCAUGU 454 ACATGAAA GGCTAGCTACAACGA CCATTTGG 2156 1928 UGGGUUUC A UGUUAACU 455 AGTTAACA GGCTAGCTACAACGA GAAACCCA 2157 1930 GGUUUCAU G UUAACUUG 456 CAAGTTAA GGCTAGCTACAACGA ATGAAACC 2158 1934 UCAUGUUA A CUUGGAAA 457 TTTCCAAG GGCTAGCTACAACGA TAACATGA 2159 1945 UGGAAAAA A UGCCGACG 458 CGTCGGCA GGCTAGCTACAACGA TTTTTCCA 2160 1947 GAAAAAAU G CCGACGGA 459 TCCGTCGG GGCTAGCTACAACGA ATTTTTC 2161 1951 AAAUGCCG A CGGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA CGGCATTT 2162 1964 AGGAGAGG A CCUGAAAC 461 GTTTCAGG GGCTAGCTACAACGA CCTCTCCT 2163 1971 GACCUGAA A CUGUCUUG 462 CAAGACAG GGCTAGCTACAACGA TTCAGGTC 2164				
1923 CCAAAUGG G UUUCAUGU 454 ACATGAAA GGCTAGCTACAACGA CCATTTGG 2156 1928 UGGGUUUC A UGUUAACUU 455 AGTTAACA GGCTAGCTACAACGA GAAACCCA 2157 1930 GGUUUCAU G UUAACUUG 456 CAAGTTAA GGCTAGCTACAACGA ATGAAACC 2158 1934 UCAUGUUA A CUUGGAAA 457 TTTCCAAG GGCTAGCTACAACGA TAACATGA 2159 1945 UGGAAAAA A UGCCGACG 458 CGTCGGCA GGCTAGCTACAACGA TTTTTCCA 2160 1947 GAAAAAAU G CCGACGGA 459 TCCGTCGG GGCTAGCTACAACGA ATTTTTC 2161 1951 AAAUGCCG A CGGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA CGGCATTT 2162 1964 AGGAGAGG A CCUGAAAC 461 GTTTCAGG GGCTAGCTACAACGA CCTCTCCT 2163 1971 GACCUGAA A CUGUCUUG 462 CAAGACAG GGCTAGCTACAACGA TTCAGGTC 2164 1974 CUGAAACU G UCUUGCAC 463 GTGCAAGA GGCTAGCTACAACGA AGTTTCAG 2165	\vdash			
1928 UGGGUUUC A UGUUAACU 455 AGTTAACA GGCTAGCTACAACGA GAAACCCA 2157 1930 GGUUUCAU G UUAACUUG 456 CAAGTTAA GGCTAGCTACAACGA ATGAAACC 2158 1934 UCADGUUA A CUUGGAAA 457 TTTCCAAG GGCTAGCTACAACGA TAACATGA 2159 1945 UGGAAAAA A UGCCGACG 458 CGTCGGCA GGCTAGCTACAACGA TTTTTCCA 2160 1947 GAAAAAAU G CCGACGGA 459 TCCGTCGG GGCTAGCTACAACGA ATTTTTTC 2161 1951 AAAUGCCG A CGGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA CGGCATTT 2162 1964 AGGAGAGG A CCUGAAAC 461 GTTTCAGG GGCTAGCTACAACGA CCTCTCCT 2163 1971 GACCUGAA A CUGUCUUG 462 CAAGACAG GGCTAGCTACAACGA TTCAGGTC 2164 1974 CUGAAACU G UCUUGCAC 463 GTGCAAGA GGCTAGCTACAACGA AGTTTCAG 2165				
1930 GGUUUCAU G UUAACUUG 456 CAAGTTAA GGCTAGCTACAACGA ATGAAACC 2158 1934 UCAUGUUA A CUUGGAAA 457 TTTCCAAG GGCTAGCTACAACGA TAACATGA 2159 1945 UGGAAAAA A UGCCGACG 458 CGTCGGCA GGCTAGCTACAACGA TTTTTCCA 2160 1947 GAAAAAAU G CCGACGGA 459 TCCGTCGG GGCTAGCTACAACGA ATTTTTTC 2161 1951 AAAUGCCG A CGGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA CGGCATTT 2162 1964 AGGAGAGG A CCUGAAAC 461 GTTTCAGG GGCTAGCTACAACGA CCTCTCCT 2163 1971 GACCUGAA A CUGUCUUG 462 CAAGACAG GGCTAGCTACAACGA TTCAGGTC 2164 1974 CUGAAACU G UCUUGCAC 463 GTGCAAGA GGCTAGCTACAACGA AGTTTCAG 2165				
1934 UCAUGUNA A CUUGGAAA 457 TTTCCAAG GGCTAGCTACAACGA TAACATGA 2159 1945 UGGAAAAA A UGCCGACG 458 CGTCGGCA GGCTAGCTACAACGA TTTTTCCA 2160 1947 GAAAAAAU G CCGACGGA 459 TCCGTCGG GGCTAGCTACAACGA ATTTTTTC 2161 1951 AAAUGCCG A CGGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA CGGCATTT 2162 1964 AGGAGAGG A CCUGAAAC 461 GTTTCAGG GGCTAGCTACAACGA CCTCTCCT 2163 1971 GACCUGAA A CUGUCUUG 462 CAAGACAG GGCTAGCTACAACGA TTCAGGTC 2164 1974 CUGAAACU G UCUUGCAC 463 GTGCAAGA GGCTAGCTACAACGA AGTTTCAG 2165				
1945 UGGARAAA A UGCCGACG 458 CGTCGGCA GGCTAGCTACAACGA TTTTTCCA 2160 1947 GARARAAU G CCGACGGA 459 TCCGTCGG GGCTAGCTACAACGA ATTTTTTC 2161 1951 ARAUGCCG A CGGARGGA 460 TCCTTCCG GGCTAGCTACAACGA CGGCATTT 2162 1964 AGGAGAGG A CCUGARAC 461 GTTTCAGG GGCTAGCTACAACGA CCTCTCCT 2163 1971 GACCUGAA A CUGUCUUG 462 CAAGACAG GGCTAGCTACAACGA TTCAGGTC 2164 1974 CUGARACU G UCUUGCAC 463 GTGCAAGA GGCTAGCTACAACGA AGTTTCAG 2165	1930	GGUUUCAU G UUAACUUG	456	
1947 GAAAAAU G CCGACGGA 459 TCCGTCGG GGCTAGCTACAACGA ATTTTTTC 2161 1951 AAAUGCCG A CGGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA CGGCATTT 2162 1964 AGGAGAGG A CCUGAAAC 461 GTTTCAGG GGCTAGCTACAACGA CCTCTCCT 2163 1971 GACCUGAA A CUGUCUUG 462 CAAGACAG GGCTAGCTACAACGA TTCAGGTC 2164 1974 CUGAAACU G UCUUGCAC 463 GTGCAAGA GGCTAGCTACAACGA AGTTTCAG 2165			457	
1951 AAAUGCCG A CGGAAGGA 460 TCCTTCCG GGCTAGCTACAACGA CGGCATTT 2162 1964 AGGAGAGG A CCUGAAAC 461 GTTTCAGG GGCTAGCTACAACGA CCTCTCCT 2163 1971 GACCUGAA A CUGUCUUG 462 CAAGACAG GGCTAGCTACAACGA TTCAGGTC 2164 1974 CUGAAACU G UCUUGCAC 463 GTGCAAGA GGCTAGCTACAACGA AGTTTCAG 2165				
1964 AGGAGAGG A CCUGAAAC 461 GTTTCAGG GGCTAGCTACAACGA CCTCTCCT 2163 1971 GACCUGAA A CUGUCUUG 462 CAAGACAG GGCTAGCTACAACGA TTCAGGTC 2164 1974 CUGAAACU G UCUUGCAC 463 GTGCAAGA GGCTAGCTACAACGA AGTTTCAG 2165	1947	GAAAAAAU G CCGACGGA	459	
1971 GACCUGAA A CUGUCUUG 462 CAAGACAG GGCTAGCTACAACGA TTCAGGTC 2164 1974 CUGAAACU G UCUUGCAC 463 GTGCAAGA GGCTAGCTACAACGA AGTTTCAG 2165	1951		460	
1974 CUGAAACU G UCUUGCAC 463 GTGCAAGA GGCTAGCTACAACGA AGTTTCAG 2165	1964		461	
	1971	GACCUGAA A CUGUCUUG	462	CAAGACAG GGCTAGCTACAACGA TTCAGGTC 2164
1979 ACUGUCUU G CACAGUUA 464 TAACTGTG GGCTAGCTACAACGA AAGACAGT 2166	1974	CUGAAACU G UCUUGCAC	463	
	1979	ACUGUCUU G CACAGUUA	464	TAACTGTG GGCTAGCTACAACGA AAGACAGT 2166

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1981	UGUCUUGC A CAGUUAAC	465	GTTAACTG GGCTAGCTACAACGA GCAAGACA	2167
1984	CUUGCACA G UUAACAAG	466	CTTGTTAA GGCTAGCTACAACGA TGTGCAAG	2168
1988	CACAGUUA A CAAGUUCU	467	AGAACTTG GGCTAGCTACAACGA TAACTGTG	2169
1992	GUUAACAA G UUCUUAUA	468	TATAAGAA GGCTAGCTACAACGA TTGTTAAC	2170
1998	AAGUUCUU A UACAGAGA	469	TCTCTGTA GGCTAGCTACAACGA AAGAACTT	2171
2000	GUUCUUAU A CAGAGACG	470	CGTCTCTG GGCTAGCTACAACGA ATAAGAAC	2172
2006	AUACAGAG A CGUUACUU	471	AAGTAACG GGCTAGCTACAACGA CTCTGTAT	2173
2008	ACAGAGAC G UUACUUGG	472	CCAAGTAA GGCTAGCTACAACGA GTCTCTGT	2174
2011	GAGACGUU A CUUGGAUU	473	AATCCAAG GGCTAGCTACAACGA AACGTCTC	2175
2017	UUACUUGG A UUUUACUG	474	CAGTAAAA GGCTAGCTACAACGA CCAAGTAA	2176
2022	UGGAUUUU A CUGCGGAC	475	GTCCGCAG GGCTAGCTACAACGA AAAATCCA	2177
2025	AUUUUACU G CGGACAGU	476	ACTGTCCG GGCTAGCTACAACGA AGTAAAAT	2178
2029	UACUGCGG A CAGUUAAU	477	ATTAACTG GGCTAGCTACAACGA CCGCAGTA	2179
2032	UGCGGACA G UUAAUAAC	478	GTTATTAA GGCTAGCTACAACGA TGTCCGCA	2180
2036	GACAGUUA A UAACAGAA	479	TTCTGTTA GGCTAGCTACAACGA TAACTGTC	2181
2039	AGUUAAUA A CAGAACAA	480	TTGTTCTG GGCTAGCTACAACGA TATTAACT	2182
2044	AUAACAGA A CAAUGCAC	481	GTGCATTG GGCTAGCTACAACGA TCTGTTAT	2183
2047	ACAGAACA A UGCACUAC	482	GTAGTGCA GGCTAGCTACAACGA TGTTCTGT	2184
2049	AGAACAAU G CACUACAG	483	CTGTAGTG GGCTAGCTACAACGA ATTGTTCT	2185
2051	AACAAUGC A CUACAGUA	484	TACTGTAG GGCTAGCTACAACGA GCATTGTT	2186
2054	AAUGCACU A CAGUAUUA	485	TAATACTG GGCTAGCTACAACGA AGTGCATT	2187
2057	GCACUACA G UAUUAGCA	486	TGCTAATA GGCTAGCTACAACGA TGTAGTGC	2188
2059	ACUACAGU A UUAGCAAG	487	CTTGCTAA GGCTAGCTACAACGA ACTGTAGT	2189
2063	CAGUAUUA G CAAGCAAA	488	TTTGCTTG GGCTAGCTACAACGA TAATACTG	2190
2067	AUUAGCAA G CAAAAAAU	489	ATTTTTTG GGCTAGCTACAACGA TTGCTAAT	2191
2074	AGCAAAAA A UGGCCAUC	490	GATGGCCA GGCTAGCTACAACGA TTTTTGCT	2192
2077	AAAAAAUG G CCAUCACU	491	AGTGATGG GGCTAGCTACAACGA CATTTTTT	2193
2080	AAAUGGCC A UCACUAAG	492	CTTAGTGA GGCTAGCTACAACGA GGCCATTT	2194
2083	UGGCCAUC A CUAAGGAG	493	CTCCTTAG GGCTAGCTACAACGA GATGGCCA	2195
2091	ACUAAGGA G CACUCCAU	494	ATGGAGTG GGCTAGCTACAACGA TCCTTAGT	2196
2093	UAAGGAGC A CUCCAUCA	495	TGATGGAG GGCTAGCTACAACGA GCTCCTTA	2197
2098	AGCACUCC A UCACUCUU	496	AAGAGTGA GGCTAGCTACAACGA GGAGTGCT	2198
2101	ACUCCAUC A CUCUUAAU	497	ATTAAGAG GGCTAGCTACAACGA GATGGAGT	2199
2108	CACUCUUA A UCUUACCA	49B	TGGTAAGA GGCTAGCTACAACGA TAAGAGTG	2200
2113	UUAAUCUU A CCAUCAUG	499	CATGATGG GGCTAGCTACAACGA AAGATTAA	2201
2116	AUCUUACC A UCAUGAAU	500	ATTCATGA GGCTAGCTACAACGA GGTAAGAT	2202
2119	UUACCAUC A UGAAUGUU	501	AACATTCA GGCTAGCTACAACGA GATGGTAA	2203
2123	CAUCAUGA A UGUUUCCC	502	GGGAAACA GGCTAGCTACAACGA TCATGATG	2204
2125	UCAUGAAU G UUUCCCUG	503	CAGGGAAA GGCTAGCTACAACGA ATTCATGA	2205
2133	GUUUCCCU G CAAGADUC	504	GAATCTTG GGCTAGCTACAACGA AGGGAAAC	
2138	CCUGCAAG A UUCAGGCA	505	TGCCTGAA GGCTAGCTACAACGA CTTGCAGG	
2144	AGAUUCAG G CACCUAUG	506	CATAGGTG GGCTAGCTACAACGA CTGAATCT	2208
2146	AUUCAGGC A CCUAUGCC	507	GGCATAGG GGCTAGCTACAACGA GCCTGAAT	2209
2150	AGGCACCU A UGCCUGCA	508	TGCAGGCA GGCTAGCTACAACGA AGGTGCCT	
2152	GCACCUAU G CCUGCAGA	509	TCTGCAGG GGCTAGCTACAACGA ATAGGTGC	2211
2156	CUAUGCCU G CAGAGCCA	510	TGGCTCTG GGCTAGCTACAACGA AGGCATAG	2212
2161	CCUGCAGA G CCAGGAAU	511	ATTCCTGG GGCTAGCTACAACGA TCTGCAGG	2213
2168	AGCCAGGA A UGUAUACA	512	TGTATACA GGCTAGCTACAACGA TCCTGGCT	
2170	CCAGGAAU G UAUACACA	513	TGTGTATA GGCTAGCTACAACGA ATTCCTGG	2214
2172	AGGAAUGU A UACACAGG	514	CCTGTGTA GGCTAGCTACAACGA ACTTCCT	2215
2174	GAAUGUAU A CACAGGGG	515	CCCCTGTG GGCTAGCTACAACGA ATACATTC	2216
2176	AUGUADAC A CAGGGGAA	516		2217
		210	TTCCCCTG GGCTAGCTACAACGA GTATACAT	2218

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2188	GGGAAGAA A UCCUCCAG	517	CTGGAGGA GGCTAGCTACAACGA TTCTTCCC	
2206	AGAAAGAA A UUACAAUC	518	GATTGTAA GGCTAGCTACAACGA TTCTTTCT	2220
2209	AAGAAAUU A CAAUCAGA	519	TCTGATTG GGCTAGCTACAACGA AATTTCTT	2221
2212	AAAUUACA A UCAGAGAU	520	ATCTCTGA GGCTAGCTACAACGA TGTAATTT	2222
2219	AAUCAGAG A UCAGGAAG	521	CTTCCTGA GGCTAGCTACAACGA CTCTGATT	2223
2227	AUCAGGAA G CACCAUAC	522	GTATGGTG GGCTAGCTACAACGA TTCCTGAT	2224
2229	CAGGAAGC A CCAUACCU	523	AGGTATGG GGCTAGCTACAACGA GCTTCCTG	2225
2232	GAAGCACC A UACCUCCU	524	AGGAGGTA GGCTAGCTACAACGA GGTGCTTC	2226
2234	AGCACCAU A CCUCCUGC	525	GCAGGAGG GGCTAGCTACAACGA ATGGTGCT	2227
2241	UACCUCCU G CGAAACCU	526	AGGITTCG GGCTAGCTACAACGA AGGAGGTA	2228
2246	CCUGCGAA A CCUCAGUG	527	CACTGAGG GGCTAGCTACAACGA TTCGCAGG	2229
2252	AAACCUCA G UGAUCACA	528	TGTGATCA GGCTAGCTACAACGA TGAGGTTT	2230
2255	CCUCAGUG A UCACACAG	529	CTGTGTGA GGCTAGCTACAACGA CACTGAGG	2231
2258	CAGUGAUC A CACAGUGG	530	CCACTGTG GGCTAGCTACAACGA GATCACTG	2232
2260	GUGAUCAC A CAGUGGCC	531	GGCCACTG GGCTAGCTACAACGA GTGATCAC	2233
2263	AUCACACA G UGGCCAUC	532	GATGGCCA GGCTAGCTACAACGA TGTGTGAT	2234
2266	ACACAGUG G CCAUCAGC	533	GCTGATGG GGCTAGCTACAACGA CACTGTGT	2235
2269	CAGUGGCC A UCAGCAGU	534	ACTGCTGA GGCTAGCTACAACGA GGCCACTG	2236
2273	GGCCAUCA G CAGUUCCA	535	TGGAACTG GGCTAGCTACAACGA TGATGGCC	2237
2276	CAUCAGCA G UUCCACCA	536	TGGTGGAA GGCTAGCTACAACGA TGCTGATG	2238
2281	GCAGUUCC A CCACUUUA	537	TAAAGTGG GGCTAGCTACAACGA GGAACTGC	2239
2284	GUUCCACC A CUUUAGAC	538	GTCTAAAG GGCTAGCTACAACGA GGTGGAAC	2240
2291	CACUUUAG A CUGUCAUG	539	CATGACAG GGCTAGCTACAACGA CTAAAGTG	2241
2294	UUUAGACU G UCAUGCUA	540	TAGCATGA GGCTAGCTACAACGA AGTCTAAA	2242
2297	AGACUGUC A UGCUAAUG	541	CATTAGCA GGCTAGCTACAACGA GACAGTCT	2243
2299	ACUGUCAU G CUAAUGGU	542	ACCATTAG GGCTAGCTACAACGA ATGACAGT	2244
2303	UCAUGCUA A UGGUGUCC	543	GGACACCA GGCTAGCTACAACGA TAGCATGA	2245
2306	UGCUAAUG G UGUCCCCG	544	CGGGGACA GGCTAGCTACAACGA CATTAGCA	2246
2308	CUAAUGGU G UCCCCGAG	545	CTCGGGGA GGCTAGCTACAACGA ACCATTAG	2247
2316	GUCCCCGA G CCUCAGAU	546	ATCTGAGG GGCTAGCTACAACGA TCGGGGAC	2248
2323	AGCCUCAG A UCACUUGG	547	CCAAGTGA GGCTAGCTACAACGA CTGAGGCT	2249
2326	CUCAGAUC A CUUGGUUU	548	AAACCAAG GGCTAGCTACAACGA GATCTGAG	2250
2331	AUCACUUG G UUUAAAAA	549	TTTTTAAA GGCTAGCTACAACGA CAAGTGAT	2251
2339	GUUUAAAA A CAACCACA	550	TGTGGTTG GGCTAGCTACAACGA TTTTAAAC	2252
2342	UAAAAACA A CCACAAAA	551	TTTTGTGG GGCTAGCTACAACGA TGTTTTTA	2253
2345	AAACAACC A CAAAAUAC	552	GTATTTTG GGCTAGCTACAACGA GGTTGTTT	2254
2350	ACCACAAA A UACAACAA	553	TTGTTGTA GGCTAGCTACAACGA TTTGTGGT	2255
2352	CACAAAAU A CAACAAGA	554	TCTTGTTG GGCTAGCTACAACGA ATTTTGTG	2256
2355	AAAAUACA A CAAGAGCC	555	GGCTCTTG GGCTAGCTACAACGA TGTATTTT	2257
2361	CAACAAGA G CCUGGAAU	556	ATTCCAGG GGCTAGCTACAACGA TCTTGTTG	2258
2368	AGCCUGGA A UUAUUUUA	557	TAAAATAA GGCTAGCTACAACGA TCCAGGCT	2259
2371	CUGGAAUU A UUUUAGGA	558	TCCTAAAA GGCTAGCTACAACGA AATTCCAG	2260
2379	AUUUUAGG A CCAGGAAG	559	CTTCCTGG GGCTAGCTACAACGA CCTAAAAT	2261
2387	ACCAGGAA G CAGCACGC	560	GCGTGCTG GGCTAGCTACAACGA TTCCTGGT	2262
2390	AGGAAGCA G CACGCUGU	561	ACAGCGTG GGCTAGCTACAACGA TGCTTCCT	2263
2392	GAAGCAGC A CGCUGUUU	562	AAACAGCG GGCTAGCTACAACGA GCTGCTTC	2264
2394	AGCAGCAC G CUGUUUAU	563	ATAAACAG GGCTAGCTACAACGA GTGCTGCT	2265
2397	AGCACGCU G UUUAUUGA	564	TCAATAAA GGCTAGCTACAACGA AGCGTGCT	2266
2401	CGCUGUUU A UUGAAAGA	565	TCTTTCAA GGCTAGCTACAACGA AAACAGCG	
2410	UUGAAAGA G UCACAGAA	566	TTCTGTGA GGCTAGCTACAACGA TCTTTCAA	2267
2413	AAAGAGUC A CAGAAGAG	567	CTCTTCTG GGCTAGCTACAACGA GACTCTTT	2268
2423	AGAAGAGG A UGAAGGUG	568		2269
4443	Shoowed a commence	300	CACCTTCA GGCTAGCTACAACGA CCTCTTCT	2270

2429	GGAUGAAG G UGUCUAUC	569	GATAGACA GGCTAGCTACAACGA CTTCATCC	2271
2431	AUGAAGGU G UCUAUCAC	570	GTGATAGA GGCTAGCTACAACGA ACCTTCAT	2272
2435	AGGUGUCU A UCACUGCA	571		2273
2438	UGUCUAUC A CUGCAAAG	572	CTTTGCAG GGCTAGCTACAACGA GATAGACA	2274
2441	CUAUCACU G CAAAGCCA	573		2275
2446	ACUGCAAA G CCACCAAC	574	GTTGGTGG GGCTAGCTACAACGA TTTGCAGT	2276
2449	GCAAAGCC A CCAACCAG	575	CTGGTTGG GGCTAGCTACAACGA GGCTTTGC	2277
2453	AGCCACCA A CCAGAAGG	576	CCTTCTGG GGCTAGCTACAACGA TGGTGGCT	2278
2462	CCAGAAGG G CUCUGUGG	577	CCACAGAG GGCTAGCTACAACGA CCTTCTGG	2279
2467	AGGGCUCU G UGGAAAGU	578	ACTITCCA GGCTAGCTACAACGA AGAGCCCT	2280
2474	UGUGGAAA G UUCAGCAU	579	ATGCTGAA GGCTAGCTACAACGA TTTCCACA	2281
2479	AAAGUUCA G CAUACCUC	580	GAGGTATG GGCTAGCTACAACGA TGAACTTT	2282
2481	AGUUCAGC A UACCUCAC	581	GTGAGGTA GGCTAGCTACAACGA GCTGAACT	2283
2483	UUCAGCAU A CCUCACUG	582	CAGTGAGG GGCTAGCTACAACGA ATGCTGAA	2284
2488	CAUACCUC A CUGUUCAA	583	TTGAACAG GGCTAGCTACAACGA GAGGTATG	2285
2491	ACCUCACU G UUCAAGGA	584	TCCTTGAA GGCTAGCTACAACGA AGTGAGGT	2286
2500	UUCAAGGA A CCUCGGAC	585	GTCCGAGG GGCTAGCTACAACGA TCCTTGAA	2287
2507	AACCUCGG A CAAGUCUA	586	TAGACTTG GGCTAGCTACAACGA CCGAGGTT	2288
2511	UCGGACAA G UCUAAUCU	587	AGATTAGA GGCTAGCTACAACGA TTGTCCGA	2289
2516	CAAGUCUA A UCUGGAGC	588	GCTCCAGA GGCTAGCTACAACGA TAGACTTG	2290
2523	AAUCUGGA G CUGAUCAC	589	GTGATCAG GGCTAGCTACAACGA TCCAGATT	2291
2527	UGGAGCUG A UCACUCUA	590	TAGAGTGA GGCTAGCTACAACGA CAGCTCCA	2292
2530	AGCUGAUC A CUCUAACA	591	TGTTAGAG GGCTAGCTACAACGA GATCAGCT	2293
2536	UCACUCUA A CAUGCACC	592	GGTGCATG GGCTAGCTACAACGA TAGAGTGA	2294
2538	ACUCUAAC A UGCACCUG	593	CAGGTGCA GGCTAGCTACAACGA GTTAGAGT	2295
2540	UCUAACAU G CACCUGUG	594	CACAGGTG GGCTAGCTACAACGA ATGTTAGA	2296
2542	UAACAUGC A CCUGUGUG	595	CACACAGG GGCTAGCTACAACGA GCATGTTA	2297
2546	AUGCACCU G UGUGGCUG	596	CAGCCACA GGCTAGCTACAACGA AGGTGCAT	2298
2548	GCACCUGU G UGGCUGCG	597	CGCAGCCA GGCTAGCTACAACGA ACAGGTGC	2299
2551	CCUGUGUG G CUGCGACU	598	AGTCGCAG GGCTAGCTACAACGA CACACAGG	2300
2554	GUGUGGCU G CGACUCUC	599	GAGAGTCG GGCTAGCTACAACGA AGCCACAC	2301
2557	UGGCUGCG A CUCUCUUC	600	GAAGAGAG GGCTAGCTACAACGA CGCAGCCA	2302
2568	CUCUUCUG G CUCCUAUU	601	AATAGGAG GGCTAGCTACAACGA CAGAAGAG	2303
2574	UGGCUCCU A UUAACCCU	602	AGGGTTAA GGCTAGCTACAACGA AGGAGCCA	2304
2578	UCCUAUUA A CCCUCCUU	603	AAGGAGGG GGCTAGCTACAACGA TAATAGGA	2305
2587	CCCUCCUU A UCCGAAAA	604	TTTTCGGA GGCTAGCTACAACGA AAGGAGGG	2306
2596	UCCGAAAA A UGAAAAGG	605	CCTTTTCA GGCTAGCTACAACGA TTTTCGGA	2307
2604	AUGAAAAG G UCUUCUUC	606	GAAGAAGA GGCTAGCTACAACGA CTTTTCAT	2308
2617	CUUCUGAA A UAAAGACU	607	AGTCTTTA GGCTAGCTACAACGA TTCAGAAG	2309
2623	AAAUAAAG A CUGACUAC	608	GTAGTCAG GGCTAGCTACAACGA CTTTATTT	2310
2627	AAAGACUG A CUACCUAU	609	ATAGGTAG GGCTAGCTACAACGA CAGTCTTT	2311
2630	GACUGACU A CCUAUCAA	610	TTGATAGG GGCTAGCTACAACGA AGTCAGTC	2312
2634	GACUACCU A UCAAUUAU	611	ATAATTGA GGCTAGCTACAACGA AGGTAGTC	2313
2638	ACCUAUCA A UUAUAAUG	612	CATTATAA GGCTAGCTACAACGA TGATAGGT	2314
2641	UAUCAAUU A UAAUGGAC	613	GTCCATTA GGCTAGCTACAACGA AATTGATA	2315
2644	CAAUUAUA A UGGACCCA	614	TGGGTCCA GGCTAGCTACAACGA TATAATTG	2316
2648	UAUAAUGG A CCCAGAUG	615	CATCTGGG GGCTAGCTACAACGA CCATTATA	2317
2654	GGACCCAG A UGAAGUUC	616	GAACTTCA GGCTAGCTACAACGA CTGGGTCC	2318
2659	CAGAUGAA G UUCCUUUG	617	CAAAGGAA GGCTAGCTACAACGA TTCATCTG	2319
2669	UCCUUUGG A UGAGCAGU	618	ACTGCTCA GGCTAGCTACAACGA CCAAAGGA	2320
2673	UUGGAUGA G CAGUGUGA	619	TCACACTG GGCTAGCTACAACGA TCATCCAA	2321
2676	GAUGAGCA G UGUGAGCG	620	CGCTCACA GGCTAGCTACAACGA TGCTCATC	2322

2678	UGAGCAGU G UGAGCGGC	621	COCCOTOR COCTROCTER CARROLL ACTION	
2682	CAGUGUGA G CGGCUCCC	622	GCCGCTCA GGCTACCTACAACGA ACTGCTCA	2323
2685	UGUGAGCG G CUCCCUUA	 	GGGAGCCG GGCTAGCTACAACGA TCACACTG	2324
2693		623	TAAGGGAG GGCTAGCTACAACGA CGCTCACA	2325
2696	GCUCCCUU A UGAUGCCA	624	TGGCATCA GGCTAGCTACAACGA AAGGGAGC	2326
	CCCUUAUG A UGCCAGCA	625	TGCTGGCA GGCTAGCTACAACGA CATAAGGG	2327
2698	CUUAUGAU G CCAGCAAG	626	CTTGCTGG GGCTAGCTACAACGA ATCATAAG	2328
2702	UGAUGCCA G CAAGUGGG	627	CCCACTTG GGCTAGCTACAACGA TGGCATCA	2329
2706	GCCAGCAA G UGGGAGUU	628	AACTCCCA GGCTAGCTACAACGA TTGCTGGC	2330
2712	AAGUGGGA G UUUGCCCG	629	CGGGCAAA GGCTAGCTACAACGA TCCCACTT	2331
2716	GGGAGUUU G CCCGGGAG	630	CTCCCGGG GGCTAGCTACAACGA AAACTCCC	2332
2727	CGGGAGAG A CUUAAACU	631	AGTTTAAG GGCTAGCTACAACGA CTCTCCCG	2333
2733	AGACUUAA A CUGGGCAA	632	TTGCCCAG GGCTAGCTACAACGA TTAAGTCT	2334
2738	UAAACUGG G CAAAUCAC	633	GTGATTTG GGCTAGCTACAACGA CCAGTTTA	2335
2742	CUGGGCAA A UCACUUGG	634	CCAAGTGA GGCTAGCTACAACGA TTGCCCAG	2336
2745	GGCAAAUC A CUUGGAAG	635	CTTCCAAG GGCTAGCTACAACGA GATTTGCC	2337
2758	GAAGAGGG G CUUUUGGA	636	TCCAAAAG GGCTAGCTACAACGA CCCTCTTC	2338
2770	UUGGAAAA G UGGUUCAA	637	TTGAACCA GGCTAGCTACAACGA TTTTCCAA	2339
2773	GAAAAGUG G UUCAAGCA	638	TGCTTGAA GGCTAGCTACAACGA CACTTTTC	2340
2779	UGGUUCAA G CAUCAGCA	639	TGCTGATG GGCTAGCTACAACGA TTGAACCA	2341
2781	GUUCAAGC A UCAGCAUU	640	AATGCTGA GGCTAGCTACAACGA GCTTGAAC	2342
2785	AAGCAUCA G CAUUUGGC	641	GCCAAATG GGCTAGCTACAACGA TGATGCTT	2343
2787	GCAUCAGC A UUUGGCAU	642	ATGCCAAA GGCTAGCTACAACGA GCTGATGC	2344
2792	AGCAUUUG G CAUUAAGA	643	TCTTAATG GGCTAGCTACAACGA CAAATGCT	2345
2794	CAUUUGGC A UUAAGAAA	644	TTTCTTAA GGCTAGCTACAACGA GCCAAATG	2346
2802	AUUAAGAA A UCACCUAC	645	GTAGGTGA GGCTAGCTACAACGA TTCTTAAT	2347
2805	AAGAAAUC A CCUACGUG	646	CACGTAGG GGCTAGCTACAACGA GATTTCTT	2348
2809	AAUCACCU A CGUGCCGG	647	CCGGCACG GGCTAGCTACAACGA AGGTGATT	2349
2811	UCACCUAC G UGCCGGAC	648	GTCCGGCA GGCTAGCTACAACGA GTAGGTGA	2350
2813	ACCUACGU G CCGGACUG	649	CAGTCCGG GGCTAGCTACAACGA ACGTAGGT	2351
2818	CGUGCCGG A CUGUGGCU	650	AGCCACAG GGCTAGCTACAACGA CCGGCACG	2352
2821	GCCGGACU G UGGCUGUG	651	CACAGCCA GGCTAGCTACAACGA AGTCCGGC	2353
2824	GGACUGUG G CUGUGAAA	652	TTTCACAG GGCTAGCTACAACGA CACAGTCC	2354
2827	CUGUGGCU G UGAAAAUG	653	CATTITCA GGCTAGCTACAACGA AGCCACAG	2355
2833	CUGUGAAA A UGCUGAAA	654	TTTCAGCA GGCTAGCTACAACGA TTTCACAG	2356
2835	GUGAAAAU G CUGAAAGA	655	TCTTTCAG GGCTAGCTACAACGA ATTTTCAC	2357
2848	AAGAGGGG G CCACGGCC	656	GGCCGTGG GGCTAGCTACAACGA CCCCTCTT	2358
2851	AGGGGGCC A CGGCCAGC	657	GCTGGCCG GGCTAGCTACAACGA GGCCCCCT	2359
2854	GGGCCACG G CCAGCGAG	658	CTCGCTGG GGCTAGCTACAACGA CGTGGCCC	2360
2858	CACGGCCA G CGAGUACA	659	TGTACTCG GGCTAGCTACAACGA TGGCCGTG	2361
2862	GCCAGCGA G UACAAAGC	660	GCTTTGTA GGCTAGCTACAACGA TCGCTGGC	2362
2864	CAGCGAGU A CAAAGCUC	661	GAGCITTG GGCTAGCTACAACGA ACTCGCTG	2363
2869	AGUACAAA G CUCUGAUG	662	CATCAGAG GGCTAGCTACAACGA TTTGTACT	2364
2875	AAGCUCUG A UGACUGAG	663	CTCAGTCA GGCTAGCTACAACGA CAGAGCTT	2365
2878	CUCUGAUG A CUGAGCUA	664	TAGCTCAG GGCTAGCTACAACGA CATCAGAG	2366
2883	AUGACUGA G CUAAAAAU	665	ATTITTAG GGCTAGCTACAACGA TCAGTCAT	2367
2890	AGCUAAAA A UCUUGACC	666	GGTCAAGA GGCTAGCTACAACGA TTTTAGCT	2368
2896	AAAUCUUG A CCCACAUU	667	AATGTGGG GGCTAGCTACAACGA CAAGATTT	2369
2900	CUUGACCC A CAUUGGCC	668	GGCCAATG GGCTAGCTACAACGA GGGTCAAG	
2902	UGACCCAC A UUGGCCAC	669	GTGGCCAA GGCTAGCTACAACGA GTGGGTCA	2371
2906	CCACAUUG G CCACCAUC	670	GATGGTGG GGCTAGCTACAACGA CAATGTGG	
2909	CAUUGGCC A CCAUCUGA	671	TCAGATGG GGCTAGCTACAACGA GGCCAATG	2372
2912	UGGCCACC A UCUGAACG	672	CGTTCAGA GGCTAGCTACAACGA GGTGGCCA	
			GGCIAGCIACAACGA GGIGGCCA	2374

2918	CCAUCUGA A CGUGGUUA	673	TAACCACG GGCTAGCTACAACGA TCAGATGG 23	75
2920	AUCUGAAC G UGGUUAAC	674		76
2923	UGAACGUG G UUAACCUG	675	CAGGTTAA GGCTAGCTACAACGA CACGTTCA 23	77
2927	CGUGGUUA A CCUGCUGG	676	CCAGCAGG GGCTAGCTACAACGA TAACCACG 23	78
2931	GUUAACCU G CUGGGAGC	677	GCTCCCAG GGCTAGCTACAACGA AGGTTAAC 23	79
2938	UGCUGGGA G CCUGCACC	678	GGTGCAGG GGCTAGCTACAACGA TCCCAGCA 23	80
2942	GGGAGCCU G CACCAAGC	679	GCTTGGTG GGCTAGCTACAACGA AGGCTCCC 23	81
2944	GAGCCUGC A CCAAGCAA	680	TTGCTTGG GGCTAGCTACAACGA GCAGGCTC 23	82
2949	UGCACCAA G CAAGGAGG	681	CCTCCTTG GGCTAGCTACAACGA TTGGTGCA 23	83
2958	CAAGGAGG G CCUCUGAU	682	ATCAGAGG GGCTAGCTACAACGA CCTCCTTG 23	84
2965	GGCCUCUG A UGGUGAUU	683	AATCACCA GGCTAGCTACAACGA CAGAGGCC 23	85
2968	CUCUGAUG G UGAUUGUU	684	AACAATCA GGCTAGCTACAACGA CATCAGAG 23	86
2971	UGAUGGUG A UUGUUGAA	685	TTCAACAA GGCTAGCTACAACGA CACCATCA 23	87
2974	UGGUGAUU G UUGAAUAC	686	GTATTCAA GGCTAGCTACAACGA AATCACCA 23	88
2979	AUUGUUGA A UACUGCAA	687	TTGCAGTA GGCTAGCTACAACGA TCAACAAT 23	189
2981	UGUUGAAU A CUGCAAAU	688	ATTTGCAG GGCTAGCTACAACGA ATTCAACA 23	90
2984	UGAAUACU G CAAAUAUG	689	CATATTTG GGCTAGCTACAACGA AGTATTCA 23	91
2988	UACUGCAA A UAUGGAAA	690	TTTCCATA GGCTAGCTACAACGA TTGCAGTA 23	92
2990	CUGCAAAU A UGGAAAUC	691	GATTTCCA GGCTAGCTACAACGA ATTTGCAG 23	193
2996	AUAUGGAA A UCUCUCCA	692	TGGAGAGA GGCTAGCTACAACGA TTCCATAT 23	94
3005	UCUCUCCA A CUACCUCA	693	TGAGGTAG GGCTAGCTACAACGA TGGAGAGA 23	95
3008	CUCCAACU A CCUCAAGA	694	TCTTGAGG GGCTAGCTACAACGA AGTTGGAG 23	96
3017	CCUCAAGA G CAAACGUG	695	CACGTTTG GGCTAGCTACAACGA TCTTGAGG 23	97
3021	AAGAGCAA A CGUGACUU	696	AAGTCACG GGCTAGCTACAACGA TTGCTCTT 23	98
3023	GAGCAAAC G UGACUUAU	697	ATAAGTCA GGCTAGCTACAACGA GTTTGCTC 23	199
3026	CAAACGUG A CUUAUUUU	698	AAAATAAG GGCTAGCTACAACGA CACGTTTG 24	100
3030	CGUGACUU A UUUUUUCU	699	AGAAAAA GGCTAGCTACAACGA AAGTCACG 24	01
3041	UUUUCUCA A CAAGGAUG	700	CATCCTTG GGCTAGCTACAACGA TGAGAAAA 24	02
3047	CAACAAGG A UGCAGCAC	701	GTGCTGCA GGCTAGCTACAACGA CCTTGTTG 24	03
3049	ACAAGGAU G CAGCACUA	702	TAGTGCTG GGCTAGCTACAACGA ATCCTTGT 24	04
3052	AGGAUGCA G CACUACAC	703	GTGTAGTG GGCTAGCTACAACGA TGCATCCT 24	05
3054	GAUGCAGC A CUACACAU	704	ATGTGTAG GGCTAGCTACAACGA GCTGCATC 24	06
3057	GCAGCACU A CACAUGGA	705	TCCATGTG GGCTAGCTACAACGA AGTGCTGC 24	07
3059	AGCACUAC A CAUGGAGC	706	GCTCCATG GGCTAGCTACAACGA GTAGTGCT 24	108
3061	CACUACAC A UGGAGCCU	707	AGGCTCCA GGCTAGCTACAACGA GTGTAGTG 24	109
3066	CACAUGGA G CCUAAGAA	708	TTCTTAGG GGCTAGCTACAACGA TCCATGTG 24	10
3082	AAGAAAAA A UGGAGCCA	709	TGGCTCCA GGCTAGCTACAACGA TTTTTCTT 24	111
3087	AAAAUGGA G CCAGGCCU	710	AGGCCTGG GGCTAGCTACAACGA TCCATTTT 24	12
3092	GGAGCCAG G CCUGGAAC	711	GTTCCAGG GGCTAGCTACAACGA CTGGCTCC 24	13
3099	GGCCUGGA A CAAGGCAA	712	TTGCCTTG GGCTAGCTACAACGA TCCAGGCC 24	
3104	GGAACAAG G CAAGAAAC	713	GITTCTTG GGCTAGCTACAACGA CTTGTTCC 24	
3111	GGCAAGAA A CCAAGACU	714	AGTCTTGG GGCTAGCTACAACGA TTCTTGCC 24	
3117	AAACCAAG A CUAGAUAG	715	CTATCTAG GGCTAGCTACAACGA CTTGGTTT 24	
3122	AAGACUAG A UAGCGUCA	716	TGACGCTA GGCTAGCTACAACGA CTAGTCTT 24	
3125	ACUAGADA G CGUCACCA	717	TGGTGACG GGCTAGCTACAACGA TATCTAGT 24	
3127	UAGAUAGC G UCACCAGC	718		20
3130	AUAGCGUC A CCAGCAGC	719		21
3134	CGUCACCA G CAGCGAAA	720	TTTCGCTG GGCTAGCTACAACGA TGGTGACG 24	
3137	CACCAGCA G CGAAAGCU	721	AGCTTTCG GGCTAGCTACAACGA TGCTGGTG 24	
3143	CAGCGAAA G CUUUGCGA	722		24
3148	AAAGCUUU G CGAGCUCC	723		25
3152	CUUUGCGA G CUCCGGCU	724	AGCCGGAG GGCTAGCTACAACGA TCGCAAAG 24	
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2350	Greatest a crystales	705	COMORARO COCCURACIONA CAROCIA COCOR COCOR COMO	2427
3158	GAGCUCCG G CUUUCAGG	725	CCTGAAAG GGCTAGCTACAACGA CGGAGCTC	
3170	UCAGGAAG A UAAAAGUC	726	GACTTITA GGCTAGCTACAACGA CTTCCTGA	2428
3176	AGAUAAAA G UCUGAGUG	727	CACTCAGA GGCTAGCTACAACGA TTTTATCT	2429
3182	AAGUCUGA G UGAUGUUG	728	CAACATCA GGCTAGCTACAACGA TCAGACTT	2430
3185	UCUGAGUG A UGUUGAGG	729	CCTCAACA GGCTAGCTACAACGA CACTCAGA	2431
3187	UGAGUGAU G UUGAGGAA	730	TTCCTCAA GGCTAGCTACAACGA ATCACTCA	2432
3203	AGAGGAGG A UUCUGACG	731	CGTCAGAA GGCTAGCTACAACGA CCTCCTCT	2433
3209	GGAUUCUG A CGGUUUCU	732	AGAAACCG GGCTAGCTACAACGA CAGAATCC	2434
3212	UUCUGACG G UUUCUACA	733	TGTAGAAA GGCTAGCTACAACGA CGTCAGAA	2435
3218	CGGUUUCU A CAAGGAGC	734	GCTCCTTG GGCTAGCTACAACGA AGAAACCG	2436
3225	UACAAGGA G CCCAUCAC	735	GTGATGGG GGCTAGCTACAACGA TCCTTGTA	2437
3229	AGGAGCCC A UCACUAUG	736	CATAGTGA GGCTACCTACAACGA GGGCTCCT	2438
3232	AGCCCAUC A CUAUGGAA	737	TTCCATAG GGCTAGCTACAACGA GATGGGCT	2439
3235	CCAUCACU A UGGAAGAU	738	ATCTTCCA GGCTAGCTACAACGA AGTGATGG	2440
3242	UAUGGAAG A UCUGAUUU	739	AAATCAGA GGCTAGCTACAACGA CTTCCATA	2441
3247	AAGAUCUG A UUUCUUAC	740	GTAAGAAA GGCTAGCTACAACGA CAGATCTT	2442
3254	GAUUUCUU A CAGUUUUC	741	GAAAACTG GGCTAGCTACAACGA AAGAAATC	2443
3257	UUCUUACA G UUUUCAAG	742	CTTGAAAA GGCTAGCTACAACGA TGTAAGAA	2444
3265	GUUUUCAA G UGGCCAGA	743	TCTGGCCA GGCTAGCTACAACGA TTGAAAAC	2445
3268	UUCAAGUG G CCAGAGGC	744	GCCTCTGG GGCTAGCTACAACGA CACTTGAA	2446
3275	GGCCAGAG G CAUGGAGU	745	ACTCCATG GGCTAGCTACAACGA CTCTGGCC	2447
3277	CCAGAGGC A UGGAGUUC	746	GAACTCCA GGCTAGCTACAACGA GCCTCTGG	2448
3282	GGCAUGGA G UUCCUGUC	747	GACAGGAA GGCTAGCTACAACGA TCCATGCC	2449
3288	GAGUUCCU G UCUUCCAG	748	CTGGAAGA GGCTAGCTACAACGA AGGAACTC	2450
3300	UCCAGAAA G UGCAUUCA	749	TGAATGCA GGCTAGCTACAACGA TTTCTGGA	2451
3302	CAGAAAGU G CAUUCAUC	750	GATGAATG GGCTAGCTACAACGA ACTTTCTG	2452
3304	GAAAGUGC A UUCAUCGG	751	CCGATGAA GGCTAGCTACAACGA GCACTTTC	2453
3308	GUGCAUUC A UCGGGACC	752	GGTCCCGA GGCTAGCTACAACGA GAATGCAC	2454
3314	UCAUCGGG A CCUGGCAG	753	CTGCCAGG GGCTAGCTACAACGA CCCGATGA	2455
3319	GGGACCUG G CAGCGAGA	754	TCTCGCTG GGCTAGCTACAACGA CAGGTCCC	2456
3322	ACCUGGCA G CGAGAAAC	755	GTTTCTCG GGCTAGCTACAACGA TGCCAGGT	2457
3329	AGCGAGAA A CAUUCUUU	756	AAAGAATG GGCTAGCTACAACGA TTCTCGCT	2458
3331	CGAGAAAC A UUCUUUUA	757	TAAAAGAA GGCTAGCTACAACGA GTTTCTCG	2459
3339	AUUCUUUU A UCUGAGAA	758	TTCTCAGA GGCTAGCTACAACGA AAAAGAAT	2460
3347	AUCUGAGA A CAACGUGG	759	CCACGTTG GGCTAGCTACAACGA TCTCAGAT	2461
3350	UGAGAACA A CGUGGUGA	760	TCACCACG GGCTAGCTACAACGA TGTTCTCA	2462
3352	AGAACAAC G UGGUGAAG	761	CTTCACCA GGCTAGCTACAACGA GTTGTTCT	2463
3355	ACAACGUG G UGAAGAUU	762	AATCTTCA GGCTAGCTACAACGA CACGTTGT	2464
3361	UGGUGAAG A UUUGUGAU	763	ATCACAAA GGCTAGCTACAACGA CTTCACCA	2465
3365	GAAGAUUU G UGAUUUUG	764	CAAAATCA GGCTAGCTACAACGA AAATCTTC	
3368	GADUUGUG A UUUUGGCC	765	GGCCAAAA GGCTAGCTACAACGA CACAAATC	
3374	UGAUUUUG G CCUUGCCC	766	GGGCAAGG GGCTAGCTACAACGA CAAAATCA	
3379	UUGGCCUU G CCCGGGAU	767	ATCCCGGG GGCTAGCTACAACGA AAGGCCAA	2469
3386	DGCCCGGG A UAUUUAUA	768	TATAAATA GGCTAGCTACAACGA CCCGGGCA	2470
3388	CCCGGGAU A UUUAUAAG	769	CTTATAAA GGCTAGCTACAACGA ATCCCGGG	
3392	GGAUAUUU A UAAGAACC	770	GGTTCTTA GGCTAGCTACAACGA AAATATCC	2472
3398	UUAUAAGA A CCCCGAUU	771	AATCGGG GGCTAGCTACAACGA TCTTATAA	2473
3404	GAACCCCG A UUAUGUGA	772	TCACATAA GGCTAGCTACAACGA CGGGGTTC	
3407	CCCCGAUU A UGUGAGAA	773	TTCTCACA GGCTAGCTACAACGA AATCGGGG	
3409	CCGAUUAU G UGAGAAAA	774	TTTTCTCA GGCTAGCTACAACGA ATAATCGG	2476
3422	AAAAGGAG A WACUCGAC	775	GTCGAGTA GGCTAGCTACAACGA CTCCTTTT	2477
	AAGGAGAU A CUCGACUU	776	AAGTOGAG GGCTAGCTACAACGA ATCTCCTT	

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3498	3493	AGAGCGAC G UGUGGUCU	790	AGACCACA GGCTAGCTACAACGA GTCGCTCT	2492
3503 GUGGUCUU A CGGAGUAU 793 ATACTCCG GGCTAGCTACAACGA AAGACCAC 2495 3508 CUUACGGA G UAUUGCUG 794 CACCAATA GGCTAGCTACAACGA TCCGTAAG 2496 3510 UACGGAGU A UUGCUGUG 795 CACAGCAA GGCTAGCTACAACGA ACTCCGTA 2497 3513 GGAGUAUU G CUGUGGGA 796 TCCCACAG GGCTAGCTACAACGA ACTCCCGTA 2498 3516 GUADUGCU G UGGGAAAU 797 ATTTCCCA GGCTAGCTACAACGA ACTCCCAC 2498 3516 GUADUGCU G UGGGAAAU 797 ATTTCCCA GGCTAGCTACAACGA AGCAATAC 2499 3523 UGUGGGAA A UCUUCUCC 798 GGAGAAGA GGCTAGCTACAACGA ATCCCACA 2500 3536 CUCCUUAG G UGUGCAUA 800 TATGGAGA GGCTAGCTACAACGA TCACACGA 2500 3540 UUAGGUGG G UCUCCAUA 800 TATGGAGA GGCTAGCTACAACGA CCACCTAA 2502 3546 GGGUCUCC A UACCCAGG 801 CCTGGGTA GGCTAGCTACAACGA CCACCTAA 2502 3548 GUCUCCAU A CCCAGGAG 802 CTCCTGGG GGCTAGCTACAACGA ATGGAGAC 2504 3556 ACCCAGGA G UACAAAUG 803 CATTTGTA GGCTAGCTACAACGA ATGGAGAC 2504 3556 CCAGGAGU A CAAAUGGA 804 TCCATTG GGCTAGCTACAACGA ATGGAGAC 2504 3556 CAGGAGAC A CAAAUGGA 805 CTCATCCA GGCTAGCTACAACGA ATCCTGGT 2505 3562 GAGUACAA A UGGAUGAG 805 CTCATCCA GGCTAGCTACAACGA ATCCTGGT 2506 3572 GGAUACAA A UGGAUGAG 805 CTCATCCA GGCTAGCTACAACGA ACTCCTGG 2506 3572 GGACUUUU G CAGUCGCC 808 GGCGACTG GGCTAGCTACAACGA CCATTTGT 2508 3578 GGACUUUU G CAGUCGCC 808 GGCGACTG GGCTAGCTACAACGA CCATTTGT 2508 3581 CUUUUGCA G UCGCCUGA 809 TCCAGCGA GGCTAGCTACAACGA ACAAGTCC 2510 3581 CUUUUGCA G UCGCCUGA 809 TCCAGCGA GGCTAGCTACAACGA ACTCATCC 2510 3581 CUUUUGCA G UCGCCUGA 809 TCCAGCGA GGCTAGCTACAACGA ACAAGTCC 2511 3598 GGGAAGG C AUGAGGAU 811 TCCTCATG GGCTAGCTACAACGA ACAAGTCC 2514 3598 GGGAAGG C AUGAGGAU 812 CATCCTCA GGCTAGCTACAACGA ACAAGTCC 2514 3604 GCAUGAGG A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CTCCATCC 2513 3598 GGGAAGG C AUGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CTCCATCC 2514 3610 GGAUGAGA UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CTCCATCC 2514 3610 GGAUGAGA UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CTCCATCC 2514 3611 GUCCUGAG A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CTCCATCC 2514 3612 CUUUGCA A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CTCCATCC 2514 3613 CUCCUGAA A UGAGACC 815 CATCAGGA GGCTAGCTACAACGA CTCATCC 2515 3620 UCCAGAUA A	3495	AGCGACGU G UGGUCUUA	791	TAAGACCA GGCTAGCTACAACGA ACGTCGCT	2493
3508 CUUACGGA G UNUUGCUG 794 CAGCAATA GGCTAGCTACAACGA TCCGTAAG 2496 3510 UACGGAGU A UUGCUGUG 795 CACAGCAA GGCTAGCTACAACGA ACTCCGTA 2497 3513 GGAGUAUU G CUGUGGAA 796 TCCCACAG GGCTAGCTACAACGA ACTCCGTA 2497 3516 GUADUGCU G UGGGAAAU 797 ATTTCCCA GGCTAGCTACAACGA ACTCCGTA 2499 3523 UGUGGGAA A UCUUCUCC 798 GGAGAAGA GGCTAGCTACAACGA AGCAATAC 2499 3523 UGUGGGAA A UCUUCCCU 799 GAGACCCA GGCTAGCTACAACGA TCCCACA 2500 3536 CUCCUUAG G UGGGUCUC 799 GAGACCCA GGCTAGCTACAACGA CCACCTAA 2502 3546 GGGUCUCC A UACCCAGG 801 CCTGGGTA GGCTAGCTACAACGA CCACCTAA 2502 3546 GGUCUCCAU A CCCAGGAG 802 CTCCTGGG GGCTAGCTACAACGA CCACCTAA 2502 3546 GGUCUCCAU A CCCAGGAG 802 CTCCTGGG GGCTAGCTACAACGA ACGAGCA 2503 3548 GUCUCCAU A CCCAGGAG 802 CTCCTGGG GGCTAGCTACAACGA ACGAGCA 2503 3556 ACCCAGGAG UACAAAUG 803 CATTTGTA GGCTAGCTACAACGA ACTCCTGG 2504 3556 ACCAGGAG A UACAAAUG 803 CATTTGTA GGCTAGCTACAACGA ACTCCTGG 2506 3562 GAGUACAA A UGGAUCAG 805 CTCATCCA GGCTAGCTACAACGA TCCTGGG 2506 3562 GAGUACAA A UGGAUCAG 805 CTCATCCA GGCTAGCTACAACGA TCCTGGC 2507 3578 GGAUGAAGG A CUUUUCCA 807 TGCAAAAG GGCTAGCTACAACGA CCATTTGT 2508 3579 GGAUGAAGG A CUUUUCCA 807 TGCAAAAG GGCTAGCTACAACGA CCCATTCC 2509 3578 GGACUUUU G CAGUCGC 808 GGCGACTG GGCTAGCTACAACGA CCCATTCC 2509 3581 CUUUUGCA G UCCCUGA 809 TCGAGGGA GGCTAGCTACAACGA AAAAGTCC 2510 3581 CUUUUGCA G UCCCUGA 809 TCGAGGGA GGCTAGCTACAACGA ACTCATCC 2510 3598 GGGAAGGC A UGAGGAU 811 TCCTCCATG GGCTAGCTACAACGA CCCTCTCC 2514 3604 GCAUGAAGG A UGAGGAUG 812 CCCCTCAG GGCTAGCTACAACGA CCTCATCC 2515 3598 GGGAAGGC A UGAGGAUG 811 TCCTCCATG GGCTAGCTACAACGA CCTCATCC 2516 3610 GGAUGAAGA G CUCCUGA 809 TCAGGGGA GGCTAGCTACAACGA CCTCATCC 2516 3620 UCCUGAGG A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CCTCATCC 2516 3610 GGAUGAGG A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CCTCATCC 2516 3620 UCCUGAGG A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CCTCATCC 2516 3620 UCCUGAGG A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CCTCATCC 2516 3620 UCCUGAGA A UGAGGAUG 812 CATCAGGA GGCTAGCTACAACGA CCTCATCC 2516 3620 UCCUGAGA A UGAGGAUG 812 CATCAGGA GGCTAGCTACAACGA AGAGTACT 2522 3646 AUCA	3498		792	CCGTAAGA GGCTAGCTACAACGA CACACGTC	2494
3510 UACGGAGU A UUGCUGUG 795 CACAGCAA GGCTAGCTACAACGA ACTCCGTA 2497 3513 GGAGUAUU G CUGUGGGA 796 TCCCACAG GGCTAGCTACAACGA AATACTCC 2498 3516 GUADUGCU G UGGGAAAU 797 ATTCCCA GGCTAGCTACAACGA AATACTCC 2498 3516 GUADUGCU G UGGGAAAU 797 ATTCCCA GGCTAGCTACAACGA ACCAATAC 2499 3523 UGUGGGAA A UCUUCUCC 798 GGAGAAGA GGCTAGCTACAACGA TCCCCACA 2500 3536 CUCCUUAG G UGGGUCUC 799 GAGACCA GGCTAGCTACAACGA CTCACACA 2500 3536 CUCCUUAG G UGUCCCAUA 800 TATGGAGA GGCTAGCTACAACGA CCACCTAA 2502 3540 UULAGGUGG G UCUCCAUA 800 TATGGAGA GGCTAGCTACAACGA CCACCTAA 2502 3548 GGCUCCA A UACCCAGGG 801 CCTGGGTA GGCTAGCTACAACGA CCACCTAA 2502 3548 GGCUCCAU A CCCAGGAG 802 CTCCTGGG GGCTAGCTACAACGA ATGGAGAC 2503 3558 CCAGGAGU A CAAAUGGA 802 CTCCTGG GGCTAGCTACAACGA ATCGAGGC 2503 3558 CCAGGAGU A CAAAUGGA 804 TCCATTTG GGCTAGCTACAACGA ACTCCTGG 2506 3556 ACCACAGA G UGACAAAUG 805 CTCATCCA GGCTAGCTACAACGA ACTCCTGG 2506 3556 ACAAAUGGA 8UGAGGACU 806 AGTCCTCA GGCTAGCTACAACGA CCATTTTC 2507 3566 ACAAAUGG A UGAGGACU 806 AGTCCTCA GGCTAGCTACAACGA CCATTTCT 2507 3578 GGACUUUU G CAGUCGC 808 GGCGACTG GGCTAGCTACAACGA CCATTTCT 2509 3578 GGACUUUU G CAGUCGC 808 GGCGACTG GGCTAGCTACAACGA CCTCATCC 2509 3581 CUUUUGCA G UCGCCUGA 809 TCAGGCGA GGCTAGCTACAACGA CACTCCC 2509 3584 UUGCAGUU G CAUGAGGA 811 TCCTCCAG GGCTAGCTACAACGA CACTCCC 2510 3586 GGGAAGG C AUGAGGAB 811 TCCTCATG GGCTAGCTACAACGA CACTCCC 2511 3604 GCAUGAGG A UGAGGABU 812 CACCCTCAG GGCTAGCTACAACGA CCTCATCC 2513 3604 GCAUGAGG A UGAGGABU 812 CACCCTCA GGCTAGCTACAACGA CCTCATCC 2516 3610 GGALGAGG A UGAGGAU 812 CACCCTCA GGCTAGCTACAACGA CCTCACCC 2514 3620 UCCUGAG A UGAGGAB 811 TCCTCATG GGCTAGCTACAACGA TCCACAC CTCACC 2515 3610 GGALGAGG A UGAGGAB 811 TCCTCATG GGCTAGCTACAACGA TCCACAC CTCACC 2516 3618 GCUCCUGA A UGAGGAB 812 CATCCTCA GGCTAGCTACAACGA TCCACAC CTCACC 2516 3619 GAGGAAGG A UGAGGAC 814 CTCAGGAG GGCTAGCTACAACGA TCCACAC CTCACC 2516 3620 UCCUGAGA A UGAGGAC 812 CACCAGAG GGCTAGCTACAACGA TCCACAC CTCACC 2516 3620 UCCUGAGA A UGAGGAC 821 TCCAGGAG GGCTAGCTACAACGA ACTCATCC 2516 3621 UCCUGAGA A UGAGGAC 821 GTCAGCTACAACGA ACTCATCC 2521 3	\vdash	GUGGUCUU A CGGAGUAU	793	ATACTCCG GGCTAGCTACAACGA AAGACCAC	2495
3513 GGAGUAUU G CUGUGGGA 796 TCCCACAG GGCTAGCTACAACGA AATACTCC 2498 3516 GUADUGCU G UGGGAAAU 797 ATTTCCCA GGCTAGCTACAACGA AGCAATAC 2499 3523 UGGGGGAA A UCUUCUCC 798 GGAGAAGA GGCTAGCTACAACGA TCCCACA 2500 3536 CUCCUUAG G UGGGUCUC 799 GAGACCCA GGCTAGCTACAACGA TTCCCACA 2501 3540 UUAGGUGG G UCUCCAUA 800 TATGGAGA GGCTAGCTACAACGA CTACAGGA 2501 3540 UUAGGUGG G UCUCCAUA 800 TATGGAGA GGCTAGCTACAACGA CCACCTAA 2502 3546 GGGUCUCC A UACCCAGG 801 CCTGGGTA GGCTAGCTACAACGA GGAGACCC 2503 3548 GUCUCCAU A CCCAGGAG 802 CTCCTGGG GGCTAGCTACAACGA ATGGAGAC 2504 3556 ACCAGGA G UACAAAUG 803 CATTTGTA GGCTAGCTACAACGA ATCGGGGT 2505 3558 CCAGGAGU A CAAAUGGA 804 TCCATTGA GGCTAGCTACAACGA ACCTCTGG 2506 3556 ACCAAGAA A UGGAUGAG 805 CTCATCCA GGCTAGCTACAACGA ACCTCTGG 2506 35572 GGAUACAA A UGGAUGAC 806 AGTCCTCA GGCTAGCTACAACGA CCATTTGT 2507 3566 ACAAAUGG A UGAGGACU 806 AGTCCTCA GGCTAGCTACAACGA CCATTTGT 2508 3572 GGAUGACA A UGAGGACU 806 AGTCCTCA GGCTAGCTACAACGA CCATTTGT 2508 3578 GGACUUUU G CAGUGCC 808 GGCGACTG GGCTAGCTACAACGA CCTCATCC 2509 3578 GGACUUUU G CAGUGCC 808 GGCGACTG GGCTAGCTACAACGA CCTCATCC 2509 3578 GGACUUUU G CAGUGCC 808 GGCGACTG GGCTAGCTACAACGA ACCTCATCC 2511 3584 UUGCAGUC G CCUGAGG 810 CCCTCAGG GGCTAGCTACAACGA TGCAAAGA 2512 3596 GAGGGAAG G CAUGAGGA 811 TCCTCATG GGCTAGCTACAACGA CTTCCCT 2513 3598 GGCAAGGC A UGAGGAU 812 CCCTCAGG GGCTAGCTACAACGA CCTTCCCC 2514 3604 GCAUGAGG A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CTTCCCT 2513 3618 GCCCCGA G UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CTTCCCTC 2514 3618 GCUCCGA G UACAGGAUG 814 CTCAGGAG GGCTAGCTACAACGA CTTCCATC 2516 3618 GCUCCGA G UACAGGAUG 813 AGCTCTCA GGCTAGCTACAACGA CTTCCATC 2516 3620 UCCUGAG A UGAGGAUG 814 CTCAGGAG GGCTAGCTACAACGA CTTCCATC 2516 3636 GAGAGAC A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CTCAGGA 2517 3620 UCCUGAG A UGAGGAC 814 CTCAGGAG GGCTAGCTACAACGA CTCAGGA 2517 3620 UCCUGAG A UGAGGAC 814 CTCAGGAG GGCTAGCTACAACGA CTCAGGA 2518 3631 GUACAGUC A UCCUGAA 817 CTCAGGAG GGCTAGCTACAACGA ACCTACGA 2518 3632 CUCCUGAA A UCCUGAA 817 CTCAGGAG GGCTAGCTACAACGA ACCTAGGAG 2520 3646 AUCAGAUC A UCCUGAA	3508	CUUACGGA G UAUUGCUG	794	CAGCAATA GGCTAGCTACAACGA TCCGTAAG	2496
3516 GUADUGCU G UGGGAAAU 797 ATTTCCCA GGCTAGCTACAACGA AGCAATAC 2499 3523 UGUGGGAA A UCUUCUCC 798 GGAGAAGA GGCTAGCTACAACGA TTCCCACA 2500 3536 CUCCUUAG G UGGGUCUC 799 GAGACCCA GGCTAGCTACAACGA CTCCCACA 2500 3540 UUAGGUGG G UCUCCAUA 800 TATGGAGA GGCTAGCTACAACGA CTAAGGAG 2501 3540 UUAGGUGG G UCUCCAUA 800 TATGGAGA GGCTAGCTACAACGA CTAAGGAG 2501 3548 GUCUCCAU A CCCAGGA 801 CCTGGGTA GGCTAGCTACAACGA GGAGACCC 2503 3548 GUCUCCAU A CCCAGGAG 802 CTCCTGGG GGCTAGCTACAACGA ATGGAGAC 2504 3556 ACCCAGGA G UACAAAUG 803 CATTTGTA GGCTAGCTACAACGA ATGGAGAC 2504 3556 ACCCAGGA G UACAAAUG 803 CATTTGTA GGCTAGCTACAACGA ACCTCGGGT 2505 3558 CCAGGAGU A CAAAUGGA 804 TCCATTG GGCTAGCTACAACGA ACCTCGGG 2506 3556 ACAAAUGG A UGAGGACU 806 AGTCCTCA GGCTAGCTACAACGA TTGTACTC 2507 3566 ACAAAUGG A UGAGGACU 806 AGTCCTCA GGCTAGCTACAACGA TTGTACTC 2507 3578 GGACUUUU G CAGUCGC 808 GGCGACTG GGCTAGCTACAACGA CCTCTATCC 2509 3578 GGACUUUU G CAGUCGC 808 GGCGACTG GGCTAGCTACAACGA AAAGGTCC 2510 3581 CUUUUGCA G UCGCCUGA 809 TCAGGCGA GGCTAGCTACAACGA AAAAGTCC 2510 3584 UUGCAGUC G CCUGAAGGG 811 CCCTCAGG GGCTAGCTACAACGA CCTCCTCC 2513 3596 GAGGGAAG G CAUGAAGGA 811 TCCTCATG GGCTAGCTACAACGA CTCCCTCC 2513 3598 GGGAAGGC A UGAGGAG 811 TCCTCATG GGCTAGCTACAACGA CCTCCTCC 2514 3604 GCAUGAAG A UGAGGAUG 812 ACCTCTCA GGCTAGCTACAACGA CCTCCTCC 2514 3610 GGAUGAGA G CUCUGAG 811 TCCTCATG GGCTAGCTACAACGA CCTCCTCC 2514 3610 GGAUGAGA G UGAGGAUG 812 TCCTCAG GGCTAGCTACAACGA CCTCCTCC 2515 3610 GGAUGAAG A UGAGGAUG 812 TCCAGGA GGCTAGCTACAACGA CCTCCTCC 2516 3618 GCUCCUGA G UACAGGA 811 TCCTCATG GGCTAGCTACAACGA CCTCCTCC 2516 3618 GCUCCUGA G UACAGGA 811 TCCTCATG GGCTAGCTACAACGA CCTCCATCC 2516 3620 UCCUGAGU A UGAGGAUG 812 GTAGCTACAACGA CCTCCATGC 2515 3631 UCAAACCA G UACAGGA 817 TCCAGGAG GGCTAGCTACAACGA CCTCCATCC 2516 3632 GAGGAAG A UCAGGAC 811 TCCAGGAG GGCTAGCTACAACGA CCTCATGC 2516 3633 UCCUGAGA A UCAGAGC 812 GCTAGCTACAACGA CCTCAGCA AGCATTCC 2516 3643 UCCUGAGA A UCAGAGC 812 TCAGGAG GGCTAGCTACAACGA AGCATTCC 2522 3646 AUCAGAUC A UCCUGAA 817 TCTAGGAG GGCTAGCTACAACGA AGCATTCC 2523 3648 CAGAUCUU A UCCUGAA 822	3510	UACGGAGU A UUGCUGUG	795	CACAGCAA GGCTAGCTACAACGA ACTCCGTA	2497
3523 UGUGGGAA A UCUUCUCC 798 GGAGAAGA GGCTAGCTACAACGA TTCCCACA 2500 3536 CUCCUUAG G UGGGUCUC 799 GAGACCCA GGCTAGCTACAACGA CTAAGGAG 2501 3540 UUAGGUGG G UCUCCAUA 800 TATGGAGA GGCTAGCTACAACGA CCACCTAA 2502 3546 GGGUCUCC A UACCCAGG 801 CCTGGGTA GGCTAGCTACAACGA CCACCTAA 2502 3548 GUCUCCAU A CCCAGGAG 802 CTCCTGGG GGCTAGCTACAACGA ATGGAGAC 2503 3548 GUCUCCAU A CCCAGGAG 802 CTCCTGGG GGCTAGCTACAACGA ATGGAGAC 2504 3556 ACCCAGGAG G UACAAAUG 803 CATTGTA GGCTAGCTACAACGA ATGGAGAC 2505 3558 CCAGGAGU A CAAAUGGA 804 TCCATTG GGCTAGCTACAACGA ATCCTGGG 2505 3558 CCAGGAGU A CAAAUGGA 804 TCCATTG GGCTAGCTACAACGA TCCTGGG 2506 3562 GAGUACAA A UGGAUGAG 805 CTCATCCA GGCTAGCTACAACGA ACTCCTGG 2506 3566 ACAAAUGG A UGAGGACU 806 AGTCCTCA GGCTAGCTACAACGA CCATTTGT 2507 3579 GGAUGAGG A CUUUUGCA 807 TGCAAAAG GGCTAGCTACAACGA CCATTTGT 2508 3578 GGACUUUU G CAGUCGCC 808 GGGACTG GGCTAGCTACAACGA CCATTTGT 2509 3581 CUUUUGCA G UCGCCUGA 809 TCAGGCGA GGCTAGCTACAACGA AAAAGCC 2510 3584 UUGCAGUC G CCUGAGGG 810 CCCTCAGG GGCTAGCTACAACGA AAAAGCC 2512 3598 GAGGGAAGC A UGAGGAUG 812 TCCTCCTC GGCTAGCTACAACGA CTTCCCTC 2513 3598 GGGAAGGC A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CTTCCCTC 2514 3604 GCAUGAGG A UGAGAUG 812 CATCCTCA GGCTAGCTACAACGA CCTCCTCC 2514 3610 GGAUGAGA CUCUCUAC 815 GTAGATA GGCTACAACGA CCTCATCC 2515 3611 GCUCCUGA G UACUCUAC 815 GTAGATA GGCTAGCTACAACGA CCTCATCC 2515 3612 GUCCUGAG UACUCUAC 815 GTAGATA GGCTAGCTACAACGA CCTCATCC 2515 3613 GCUCCUGA G UACUCUAC 815 GTAGATA GGCTAGCTACAACGA TCCATGC 2515 3614 GUCCUGAG A UGAGAUC 815 GTAGATA GGCTAGCTACAACGA CCTCATGC 2515 3618 GCUCCUGA G UACUCUAC 815 GTAGATA GGCTAGCTACAACGA CCTCATGC 2515 3618 GCUCCUGA G UACUCUAC 815 GTAGATA GGCTAGCTACAACGA CCTCATGC 2515 3618 GCUCCUGA G UACUCUAC 815 GTAGATA GGCTAGCTACAACGA CCTCATGC 2516 3618 GCUCCUGA A UCUCUAC 816 GAGTAGA GGCTAGCTACAACGA ATCAGGA 2520 3618 GCUCCUGA A UCUCUAC 816 GAGTAGA GGCTAGCTACAACGA ATCAGGA 2520 3618 GCUCCUGA A UCUCUAC 816 GAGTAGA GGCTAGCTACAACGA ATCAGGA 2520 3626 GAGAGCU A UGAGAUCA 819 TAGAGGA GGCTAGCTACAACGA ATCAGGA 2520 3626 GAGAGCU A UGAGACC 821 GTAGCTACAACGA A	3513	GGAGUAUU G CUGUGGGA	796	TCCCACAG GGCTAGCTACAACGA AATACTCC	2498
3536 CUCCUUAG G UGGGUCUC 799 GAGACCCA GGCTAGCTACAACGA CTAAGAG 2501 3540 UUAGGUGG G UCUCCAUA 800 TATGGAGA GGCTAGCTACAACGA CCACCTAA 2502 3546 GGGUCUCC A UACCCAGG 801 CCTGGGTA GGCTAGCTACAACGA CCACCTAA 2502 3548 GUCUCCAU A CCCAGGAG 802 CTCCTGGG GGCTAGCTACAACGA ATGGAGAC 2503 3556 ACCCAGGA G UACAAAUG 803 CATTTGTA GGCTAGCTACAACGA ATGGAGAC 2504 3556 ACCCAGGA G UACAAAUG 803 CATTTGTA GGCTAGCTACAACGA ATGGAGAC 2505 3558 CCAGGAGU A CAAAUGGA 804 TCCATTTG GGCTAGCTACAACGA ATGGACAC 2505 3566 ACAAAUGG A UGGAUGAG 805 CTCATCCA GGCTAGCTACAACGA ATGTACTC 2507 3566 ACAAAUGG A UGAGGACU 806 AGTCCTCA GGCTAGCTACAACGA ATGTACTC 2507 3572 GGAUGAGG A CUUUUGCA 807 TGCAAAAG GGCTAGCTACAACGA CCTCATCC 2509 3578 GGACUUUU G CAGUCGCC 808 GGCGACTG GGCTAGCTACAACGA CACTATCC 2509 3581 CUUUUGCA G UCGCCUGA 809 TCAGGCGA GGCTAGCTACAACGA AAAAGTCC 2510 3581 CUUUUGCA G CCUGAGGG 810 CCCTCAGG GGCTAGCTACAACGA TGCAAAAG 2511 3598 GGAGGAAG C CUUAGAGGA 811 TCCTCATG GGCTAGCTACAACGA TCTCCCTC 2513 3598 GGGAAGGC A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CCTCCCC 2514 3604 GCAUGAGG A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CCTCCTCC 2514 3610 GGAUGAGA G CUCCUGAG 814 CTCACTCA GGCTAGCTACAACGA CCTCCTCC 2515 3610 GGAUGAGA G CUCCUGAG 814 CTCACGAG GGCTAGCTACAACGA CCTCATCC 2515 3610 GGAUGAGA G CUCCUGAG 814 CTCACGAG GGCTAGCTACAACGA TCTCCCTC 2515 3610 GGAUGAGA G CUCCUGAG 814 CTCAGGAG GGCTAGCTACAACGA TCTCCCTC 2515 3610 GGAUGAGA G CUCCUGAG 814 CTCAGGAG GGCTAGCTACAACGA TCTCATCC 2515 3620 UCCUGAGU A CUCCUGAG 814 CTCAGGAG GGCTAGCTACAACGA TCTCAGCA 2515 3621 CUCCUGAG A UGAGAUC 815 GTAGAGTA GGCTAGCTACAACGA ACTCAGCA 2516 3622 UCCUGAGU A CUCCUGAG 814 CTCAGGAG GGCTAGCTACAACGA ACTCAGGA 2518 3638 UGAAAUCU A CUCCUGAA 817 TCTAGGAG GGCTAGCTACAACGA ACTCAGGA 2520 3643 UCCUGAGU A CUCCUGAA 817 TCTAGGAG GGCTAGCTACAACGA ACTGAGA 2520 3644 CUCCUGAG A UCCUGAG 818 CTGATCGA GGCTAGCTACAACGA ACGATCA 2521 3645 AGUACUCU A CUCCUGAA 819 TGTACCAG GGCTAGCTACAACGA ACGATCA 2521 3646 AUCAGAUC A UGCUGAC 821 GTCACACGA GGCTAGCTACAACGA ACGATCAC 2522 3648 CAGAUCAU G CUGGACC 821 GTCACACGA GGCTAGCTACAACGA ACGATCAC 2522 3668 CAUGCUG	3516	GUAUUGCU G UGGGAAAU	797	ATTTCCCA GGCTAGCTACAACGA AGCAATAC	2499
3540 UIJAGGUGG G UCUCCAJA 800 TATGGAGA GGCTAGCTACAACGA CCACCTAA 2502 3546 GGGUCUCC A UACCCAGG 801 CCTGGGTA GGCTAGCTACAACGA GGAGACC 2503 3548 GUCUCCAU A CCCAGGAG 802 CTCCTGGG GGCTAGCTACAACGA ATGGAGAC 2504 3556 ACCAGGAG I CACAAGUG 803 CATTTGTA GGCTAGCTACAACGA ACTCCTGG 2506 3558 CCAGGAGU A CAAAUGGA 804 TCCATTCG GGCTAGCTACAACGA ACTCCTGG 2506 3566 ACAAAUGG A UGAGGACU 806 AGTCCTCA GGCTAGCTACAACGA CCATTTGT 2507 3572 GGAUGAGG A CUUUUGCA 807 TGCAAAAG GGCTAGCTACAACGA CCTCATCC 2509 3578 GGACUUUU G CAGUCGC 808 GGCGACTG GGCTAGCTACAACGA AAAAGTCC 2510 3581 CUUUUGCA G UCGCCUGA 809 TCAGGGGA GGCTAGCTACAACGA ACGA TCCAACGA 2512 3598 GGGAAGG G CAUGAGGA 811 TCCTCAGG GGCTAGCTACAACGA GCCTTCCC 2513 3604 GCAUGAGGA UGAGGACU 812 CATCCTCA GGCTAGCTACAACGA GCCTTCCCC 2514 3610 GGAGGAAG G CAUGAGGA 811 TCCTCATG GGCTAGCTACAACGA TCCATC	3523	UGUGGGAA A UCUUCUCC	798	GGAGAAGA GGCTAGCTACAACGA TTCCCACA	2500
3546 GGGUCUCC A UACCCAGG 801 CCTGGGTA GGCTAGCTACAACGA GGAGACCC 2503 3548 GUCUCCAU A CCCAGGAG 802 CTCCTGGG GGCTAGCTACAACGA ATGGAGAC 2504 3556 ACCCAGGA G UACAAAUG 803 CATTGTA GGCTAGCTACAACGA TCCTGGGT 2505 3558 CCAGGAGU A CAAAUGGA 804 TCCATTGT GGCTAGCTACAACGA ACTCCTGG 2506 3562 GAGUACAA A UGGAUGAG 805 CTCATCCA GGCTAGCTACAACGA ACTCCTGG 2507 3566 ACAAAUGG A UGAGGACU 806 AGTCCTCA GGCTAGCTACAACGA CCTCATCC 2509 3578 GGAUGAGG A CUUUUGCA 807 TGCAAAAG GGCTAGCTACAACGA CCTCATCC 2510 3581 CUUUUGCA G UCGCCUGA 809 TCAGGCGA GGCTAGCTACAACGA ACACGA CCTCATCC 2510 3584 UUGCAGUC G CCUGAGGG 810 CCCTCAGG GGCTAGCTACAACGA ACACGA CTCCCC 2512 3596 GAGGGAGG A CUUGAGGA 811 TCCTCATG GGCTAGCTACAACGA ACACGA CTCCCC 2513 3598 GGGAAGGC A UGAGGAGU 812 CATCCTCA GGCTAGCTACAACGA GCCTTCCC 2513 3604 GCAUGAGGA A UGAGGACU 812 CATCCTCA GGCTAGCTACAACGA CCTCATCC 2515 3610 GGAUGAGG A UGAGGACU 813 AGCTCTCA GGCTAGCTACAACGA CCTCATCC 2515 3618 GCUCCUGA G UCCUGAG 814 CTCAGGAG GGCTAGCTACAACGA CCTCATCC 2516 3618 GCUCCUGA G UACUCUCC 815 GAGGAGG G CACCGAG G CACCGAG G CTCATCC 2516 3625 AGUACUCU A CUCCUGAG 814 CTCAGGAG GGCTAGCTACAACGA CTCATGC 2516 3626 GUCCUGAG A UCAGGACC 815 GAGGAGGA G CACCGAG C CTCATGC 2516 3626 GUCCUGAG A UCAGGACC 815 GAGGAGGA G CACCGAG C CTCATGC 2516 3626 GUCCUGAG A UCAGGACC 815 GAGGAGGA G CACCGAG A CACCGAA CCCAACGA ACTCAGGA C CTCATGC 2516 3626 GAUACAUC A CUCCUGAG 816 CTGATAGGA GGCTAGCTACAACGA ACTCAGGA C CTCATGC 2516 3626 GAUACAUC A CUCCUGAG 818 CTGATAGGA GGCTAGCTACAACGA ACTCAGGA C CTCATGC 2516 3626 GAUACAUC A CUCCUGAG 816 GAGTAGGA GGCTAGCTACAACGA ACTCAGGA C CTCATGC 2516 3626 GUCCUGAG A UCAGGACG 826 GAGCAGGA GGCTAGCTACAACGA ACTCAGGA C CAGCAGGA C CAGCAGGA GGCTAGCTAGACGA AGGATTACAACGA ACTCAGGA C CAGCAGGA GGCTAGCTAGACGA AGGATTACAACGA ACCGAAGGA C CAGCAGGA GCCAGGAG ACGCAGGA GCCAGGAG ACCGAGA GCCAGGAG ACCGAGAG ACCCAGAGA R CCCAGGAG	3536	CUCCUUAG G UGGGUCUC	799	GAGACCCA GGCTAGCTACAACGA CTAAGGAG	2501
3548 GUCUCCAU A CCCAGGAG 802 CTCCTGGG GGCTAGCTACAACGA ATGGAGAC 2504 3556 ACCCAGGA G UACAAAUG 803 CATTTGTA GGCTAGCTACAACGA TCCTGGGT 2505 3558 CCAGGAGU A CAAAUGGA 804 TCCATTTG GGCTAGCTACAACGA ACTCCTGG 2506 3562 GAGUACAA A UGGAUGAG 805 CTCATCCA GGCTAGCTACAACGA CTCTTGT 2507 3566 ACAAAUGG A UGAGGACU 806 AGTCCTCA GGCTAGCTACAACGA CCATTTGT 2508 3572 GGAUGAGG A CUUUUGCA 807 TGCAAAAG GGCTAGCTACAACGA CCATTTGT 2508 3578 GGACUUUU G CAGUCGCC 808 GGCGACTG GGCTAGCTACAACGA CCATCATCC 2509 3578 GGACUUUU G CAGUCGCC 809 TCAGGAGA GGCTAGCTACAACGA CAAAAGTC 2510 3581 CUUUUGCA G UCGCCUGA 809 TCAGGAGA GGCTAGCTACAACGA AAAAGTCC 2511 3584 UUGCAGUC G CCUGAAGGG 810 CCCTCAGG GGCTAGCTACAACGA AGAAAGTCC 2512 3596 GAGGGAAG G CAUGAGGA 811 TCCTCATG GGCTAGCTACAACGA GACTGCAA 2512 3598 GGGAAGGC A UGAGGAU 812 CATCCTCA GGCTAGCTACAACGA CCTCCTCC 2513 3598 GGGAAGGC A UGAGGAU 812 CATCCTCA GGCTAGCTACAACGA CCTCCATCC 2514 3604 GCAUGAGGA G UGAGGAU 813 AGCTCTCA GGCTAGCTACAACGA CCTCATCC 2515 3610 GGAUGAGGA G UCCUGAG 814 CTCAGGAG GGCTAGCTACAACGA CCTCATCC 2515 3618 GCUCCUGA G UACUCUAC 815 GTAGAGTA GGCTAGCTACAACGA TCCAGTC 2517 3620 UCCUGAGU A CUCUUGAA 817 TTCAGGAG GGCTAGCTACAACGA TCAGGAG 2518 3625 AGUACUCU A CUCUUGAA 817 TTCAGGAG GGCTAGCTACAACGA ACTCAGGA 2518 3634 CUCUUGAA A UCUAUCAG 818 CTGATAGA GGCTAGCTACAACGA ACTCAGGA 2518 3638 UGAAAUCU A UCAUGAG 820 CAGCATGA GGCTAGCTACAACGA AGAGTACT 2521 3646 AUCAGAUCA UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA AGAGTACT 2521 3646 AUCAGAUCA UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA AGAGTACT 2521 3646 AUCAGAUCA GUCGGAC 822 CAGCCACGA GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG A CUGGACG 822 CAGCCACGA GGCTAGCTACAACGA ATGATCTG 2524 3666 GCUGGACU G CUGGACA 824 TGTGCCAG GGCTAGCTACAACGA ATGATCTG 2525 3666 GCUGGACU G CUGGACA 826 GGTCCAGGA GGCTAGCTACAACGA CCAGCATC 2526 3666 GCUGGACU	3540	UUAGGUGG G UCUCCAUA	800	TATGGAGA GGCTAGCTACAACGA CCACCTAA	2502
3556 ACCCAGGA G UACAAAUG 803 CATTGTA GGCTAGCTACAACGA TCCTGGGT 2505 3558 CCAGGAGU A CAAAUGGA 804 TCCATTG GGCTAGCTACAACGA ACTCCTGG 2506 3562 GAGUACAA A UGGAUGAG 805 CTCATCCA GGCTAGCTACAACGA ACTCCTGG 2507 3566 ACAAAUGG A UGAGGACU 806 AGTCCTCA GGCTAGCTACAACGA CCATTGT 2508 3572 GGAUGAGG A CUUUUGCA 807 TGCAAAAG GGCTAGCTACAACGA ACAAGGA CCTCATCC 2509 3578 GGACUUUU G CAGUCGCC 808 GGCGACTG GGCTAGCTACAACGA ACAAGGA CCTCATCC 2510 3581 CUUUUGCA G UCGCCUGA 809 TCAGGCGA GGCTAGCTACAACGA ACACGA CCTCACCC 2512 3596 GAGGAAGG C CUUGAGGG 810 CCCTCAGG GGCTAGCTACAACGA ACACGA CTTCCCC 2513 3598 GGGAAGGC A UGAGGAU 812 CATCCTCA GGCTAGCTACAACGA CCTCATCC 2514 3604 GCAUGAGGA UGAGGACU 813 AGCTCTCA GGCTAGCTACAACGA CCTCATCC 2515 3610 GGAUGAGGA UGAGGACU 813 AGCTCTCA GGCTAGCTACAACGA CCTCATCC 2516 3618 GCUCCUGA G UACUCUAC 815 GTAGAGTA GGCTACCAACGA TCCATCC 2516 3618 GCUCCUGA G UACUCUAC 815 GTAGAGG GGCTAGCTACAACGA ACTCAGGA 2518	3546	GGGUCUCC A UACCCAGG	801	CCTGGGTA GGCTAGCTACAACGA GGAGACCC	2503
3558 CCAGGAGU A CAAAUGGA 804 TCCATTTG GGCTAGCTACAACGA ACTCCTGG 2506 3562 GAGUACAA A UGGAUGAG 805 CTCATCCA GGCTAGCTACAACGA TTGTACTC 2507 3566 ACAAAUGG A UGAGGACU 806 AGTCCTCA GGCTAGCTACAACGA CCATTTGT 2508 3572 GGAUGAGG A CUUUUGCA 807 TGCAAAAG GGCTAGCTACAACGA CCATTTGT 2509 3578 GGACUUUU G CAGUCGCC 808 GGCGACTG GGCTAGCTACAACGA AAAAGTCC 2510 3581 CUUUUGCA G UCGCCUGA 809 TCAGGCGA GGCTAGCTACAACGA AAAAGTCC 2511 3584 UUGCAGUC G CCUGAAGGG 810 CCCTCAGG GGCTAGCTACAACGA GACTGCAA 2512 3596 GAGGGAAG G CAUGAGGA 811 TCCTCATG GGCTAGCACACGA CCTCCCC 2513 3598 GGGAAGGC A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CCTCCCC 2514 3604 GCAUGAGG A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CCTCCCC 2515 3610 GGAUGAGA G UCCUGAG 814 CTCAGGAG GGCTAGCTACAACGA CCTCATGC 2515 3618 GCUCCUGA G UACUCUAC 815 GTAGAGTA GGCTAGCTACAACGA TCTCATCC 2516 3620 UCCUGAGU A CUCUUAC 816 GAGTAGAT GGCTAGCTACAACGA TCTCAGGC 2517 3620 UCCUGAGU A CUCUUAC 816 GAGTAGAT GGCTAGCTACAACGA ACTCAGGA 2518 3625 AGUACUCU A CUCUUGAA 817 TCCAGGAG GGCTAGCTACAACGA ACTCAGGA 2519 3634 CUCCUGAA A UCUAUACA 819 TGATCTGA GGCTAGCTACAACGA ACTCAGGA 2519 3639 UGAAAUCU A UCCUGAA 819 TGATCTGA GGCTAGCTACAACGA ACTCAGGA 2520 3646 AUCAGAUC A UCCUGAC 820 CAGCATGA GGCTAGCTACAACGA ACTCAGGA 2520 3648 CUCCUGAA A UCUAUCAG 819 TGATCTGA GGCTAGCTACAACGA ACTCAGGA 2520 3648 CAGAUCAU A UCCAGAACA 829 CAGCATGA GGCTAGCTACAACGA ACTATCA 2521 3649 UGAAAUCU A UCCAGAACA 829 CAGCATGA GGCTAGCTACAACGA ACTATCA 2521 3640 UCAUCAGA A UCUAUCAG 820 CAGCATGA GGCTAGCTACAACGA ACATTTCA 2521 3641 UCUAUCAG A UCCUGAC 820 CAGCATGA GGCTAGCTACAACGA ACATTTCA 2521 3642 CUCCUGAA A UCUAUCAG 820 CAGCATGA GGCTAGCTACAACGA ACATTTCA 2521 3643 UCUAUCAG A UCCUGAC 820 CAGCATGA GGCTAGCTACAACGA ACATTTCA 2521 3646 AUCAGAUC A UCCUGAC 820 CAGCATGA GGCTAGCTACAACGA ACATTTCA 2522 3646 AUCAGAUC A UCCUGAC 821 GTCCAGC GGCTAGCTACAACGA ACATTTCA 2522 3646 AUCAGAUC A UCCUGAC 821 GTCCAG GGCTAGCTACAACGA ACGATCTG 2524 3653 CAUGCUGG A CUGGACC 821 GCCAGCAG GGCTAGCTACAACGA ACGAGTC 2525 3660 GACUGUG G CACAGAGA 825 CTTTTGGG GGCTAGCTACAACGA CCAGCAGTC 2525	3548	GUCUCCAU A CCCAGGAG	802	CTCCTGGG GGCTAGCTACAACGA ATGGAGAC	2504
3562 GAGUACAA A UGGAUGAG 3566 ACAAAUGG A UGAGGACU 306 AGTCCTCA GGCTAGCTACAACGA TTGTACTC 2507 3566 ACAAAUGG A UGAGGACU 306 AGTCCTCA GGCTAGCTACAACGA CCATTTGT 2508 3572 GGAUGAGG A CUUUUGCA 307 TGCAAAAG GGCTAGCTACAACGA CCTCATCC 2509 3578 GGACUUUU G CAGUCGCC 308 GGCGACTG GGCTAGCTACAACGA AAAAGTCC 2510 3581 CUUUUGCA G UCGCCUGA 309 TCAGGCGA GGCTAGCTACAACGA AAAAGTCC 2510 3584 UUGCAGUC G CCUGAGGG 810 CCCTCAGG GGCTAGCTACAACGA GACTGCAA 2512 3596 GAGGGAAG G CAUGAGGA 811 TCCTCATG GGCTAGCTACAACGA CTTCCCTC 2513 3598 GGGAAGGC A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CCTCCCC 2514 3604 GCAUGAGG A UGAGGAUG 813 AGCTCCTCA GGCTAGCTACAACGA CCTCATGC 2515 3610 GGAUGAGG A UGAGGAUG 813 AGCTCCTCA GGCTAGCTACAACGA CCTCATGC 2515 3618 GCUCCUGAG G UACUCUAC 815 GTAGGATA GGCTAGCTACAACGA TCTCAGCC 2516 3618 GCUCCUGAG G UACUCUAC 815 GTAGGATA GGCTAGCTACAACGA TCTCAGCC 2517 3620 UCCUGAGU A CUCUUACU 816 GAGTAGGT GGCTAGCTACAACGA TCAGGAC 2517 3620 UCCUGAGU A CUCUUACU 816 GAGTAGGT GGCTAGCTACAACGA ACTCAGGA 2518 3625 AGUACUCU A CUCUUGAA 817 TTCAGGAG GGCTAGCTACAACGA ACTCAGGA 2518 3634 CUCCUGGAA A UCUAUCAG 818 CTGATAGA GGCTAGCTACAACGA ACTCAGGA 2519 3634 CUCCUGAA A UCUAUCAG 819 TGATCTGA GGCTAGCTACAACGA ACTCAGGA 2520 3638 UGAAAUCU A UCAGAUCA 819 TGATCTGA GGCTAGCTACAACGA TCCAGGA 2520 3646 AUCAGAUC A UCAGAUCA 820 CAGCATGA GGCTAGCTACAACGA ACTTCAGC 3538 UGAAAUCU A UCAGAUCA 821 GTCCAGCA GGCTAGCTACAACGA ACATTTCA 2521 3646 AUCAGAUC A UCAGGAC 821 GTCCAGCA GGCTAGCTACAACGA ACATTTCA 2522 3646 AUCAGAUCA G UCGGAC 822 CAGCCAGG GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG A CUGGACC 822 CAGCCAGG GGCTAGCTACAACGA ATGATCTG 2524 3656 GCUGGACU G CUGGACCA 824 TGTGCCAG GGCTAGCTACAACGA ATGATCTG 2525 3660 GACUGUGG C CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CCAGCAGTC 2527 3662 CUGCUGGC A CAGAGAA 827 TCTTGTG GGCTAGCTACAACGA CCAGCAGTC 2528 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CCAGCAGTC 2528	3556	ACCCAGGA G UACAAAUG	803	CATTTGTA GGCTAGCTACAACGA TCCTGGGT	2505
3566 ACAAAUGG A UGAGGACU 806 AGTCCTCA GGCTAGCTACAACGA CCATTTGT 2508 3572 GGAUGAGG A CUUUUGCA 807 TGCAAAAG GGCTAGCTACAACGA CCTCATCC 2509 3578 GGACUUUU G CAGUCGCC 808 GGCGACTG GGCTAGCTACAACGA AAAAGTCC 2510 3581 CUUUUGCA G UCGCCUGA 809 TCAGGCGA GGCTAGCTACAACGA AAAAGTCC 2510 3584 UUGCAGUC G CCUGAGGG 810 CCCTCAGG GGCTAGCTACAACGA GACTGCAA 2512 3596 GAGGGAAGG C CAUGAGGA 811 TCCTCATG GGCTAGCTACAACGA GACTGCAA 2512 3598 GGGAAGGC A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CCTCCCTC 2513 3598 GGGAAGGC A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CCTCATGC 2514 3604 GCAUGAGG A UGAGGAUG 813 AGCTCTCA GGCTAGCTACAACGA CCTCATGC 2515 3610 GGAUGAGA G CUCCUGAG 814 CTCAGGAG GGCTAGCTACAACGA TCTCATCC 2516 3618 GCUCCUGA G UACUCUAC 815 GTAGAGTA GGCTAGCTACAACGA TCTCATCC 2516 3620 UCCUGAGU A CUCUUACUC 816 GAGTAGAG GGCTAGCTACAACGA TCAGGAG 2517 3620 UCCUGAGU A CUCUUACUC 816 GAGTAGAG GGCTAGCTACAACGA ACTCAGGA 2518 3625 AGUACUCU A CUCUUGAA 817 TTCAGGAG GGCTAGCTACAACGA AGAGTACT 2519 3634 CUCCUGAA A UCUAUCAG 818 CTGATGA GGCTAGCTACAACGA AGAGTACT 2519 3634 CUCCUGAA A UCUAUCAG 818 CTGATGA GGCTAGCTACAACGA AGAGTACT 2520 3638 UGAAAUCU A UCAGAUCA 819 TGATCTGA GGCTAGCTACAACGA AGATTTCA 2521 3643 UCUAUCAG A UCCUGGAC 820 CAGCATGA GGCTAGCTACAACGA AGATTTCA 2521 3646 AUCAGAUC A UGCUGGAC 821 GTCAGCA GGCTAGCTACAACGA AGATTTCA 2522 3646 AUCAGAUC A UGCUGGAC 821 GTCAGCA GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG C CUGGACUG 822 CAGTCCAG GGCTAGCTACAACGA ATGATCTG 2524 3656 GCUGGACU G CUGGCACA 824 TGTCCCAG GGCTAGCTACAACGA ATGATCTG 2525 3660 GACUGCUG C CACAGAGA 824 TGTCCCAG GGCTAGCTACAACGA AGACCAGCA CCAGCATG 2526 3660 GACUGCUG C CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CCAGCATG 2527 3662 CUGCUGGC A CAGAGACC 826 GGTCTCCTG GGCTAGCTACAACGA CCAGCATG 2528 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CTCTGTGC 2529	3558	CCAGGAGU A CAAAUGGA	804	TCCATTTG GGCTAGCTACAACGA ACTCCTGG	2506
3572 GGAUGAGG A CUUUUGCA 807 TGCAAAAG GGCTAGCTACAACGA CCTCATCC 2509 3578 GGACUUUU G CAGUCGCC 808 GGCGACTG GGCTAGCTACAACGA AAAAGTCC 2510 3581 CUUUUGCA G UCGCCUGA 809 TCAGGCGA GGCTAGCTACAACGA TGCAAAAG 2511 3584 UUGCAGUC G CCUGAAGGG 810 CCCTCAGG GGCTAGCTACAACGA GACTGCAA 2512 3596 GAGGGAAG G CAUGAGGA 811 TCCTCATG GGCTAGCTACAACGA GACTGCAA 2512 3598 GGGAAGGC A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CCTTCCCTC 2513 3598 GGGAAGGC A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CCTCATGC 2514 3604 GCAUGAGG A UGAGGAUG 813 AGCTCTCA GGCTAGCTACAACGA CCTCATGC 2515 3610 GGAUGAGG A UGAGGAUC 813 AGCTCTCA GGCTAGCTACAACGA CCTCATGC 2516 3618 GCUCCUGA G UACUCUAC 815 GTAGAGTA GGCTAGCTACAACGA TCTCATCC 2516 3620 UCCUGAGU A CUCUUACC 816 GAGTAGAG GGCTAGCTACAACGA ACTCAGGA 2518 3625 AGUACUCU A CUCCUGAA 817 TTCAGGAG GGCTAGCTACAACGA AGAGTACT 2519 3634 CUCCUGAA A UCUAUCAG 818 CTGATAGA GGCTAGCTACAACGA AGAGTACT 2519 3634 CUCCUGAA A UCUAUCAG 818 CTGATAGA GGCTAGCTACAACGA TCTCAGGAG 2520 3638 UGAAAUCU A UCAGAUCA 819 TGATCTGA GGCTAGCTACAACGA AGATTTCA 2521 3643 UCUAUCAG A UCAGAUCA 819 TGATCTGA GGCTAGCTACAACGA AGATTTCA 2521 3646 AUCAGAUC A UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA AGATTTCA 2523 3648 CAGAUCAU A UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG A CUGCUGGC 822 CAGTCCAG GGCTAGCTACAACGA ATGATCTG 2524 3656 GCUGGACU G CUGGACCA 824 TGTCCAG GGCTAGCTACAACGA ATGATCTG 2525 3656 GCUGGACU G CUGGACCA 824 TGTCCAG GGCTAGCTACAACGA ATGATCTG 2526 3660 GACUGCUG G CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2526 3660 GACUGCUG G CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2527 3662 CUGCUGGC A CAGAGGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2529 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CTCTGTGC 2529	3562	GAGUACAA A UGGAUGAG	805	CTCATCCA GGCTAGCTACAACGA TTGTACTC	2507
3578 GGACUUUU G CAGUCGCC 808 GGCGACTG GGCTAGCTACAACGA AAAAGTCC 2510 3581 CUUUUGCA G UCGCCUGA 809 TCAGGCGA GGCTAGCTACAACGA TGCAAAAG 2511 3584 UUGCAGUC G CCUGAGGG 810 CCCTCAGG GGCTAGCTACAACGA GACTGCAA 2512 3596 GAGGGAAG G CAUGAGGA 811 TCCTCATG GGCTAGCTACAACGA CTTCCCTC 2513 3598 GGGAAGGC A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA GCCTTCCC 2514 3604 GCAUGAGG A UGAGGAUG 813 AGCTCTCA GGCTAGCTACAACGA CCTCATGC 2515 3610 GGAUGAGA G CUCCUGAG 814 CTCAGGAG GGCTAGCTACAACGA CTCCATGC 2516 3618 GCUCCUGA G UACUCUAC 815 GTAGAGTA GGCTAGCTACAACGA TCTCATCC 2516 3620 UCCUGAGU A CUCUUACU 816 GAGTAGGA GGCTAGCTACAACGA TCAGGAG 2518 3625 AGUACUCU A CUCCUGAA 817 TTCAGGAG GGCTAGCTACAACGA ACTCAGGA 2518 3634 CUCCUGAA A UCUAUCAG 818 CTGATAGA GGCTAGCTACAACGA AGAGTACT 2519 3634 CUCCUGAA A UCUAUCAG 818 CTGATAGA GGCTAGCTACAACGA AGAGTACT 2519 3638 UGAAAUCU A UCAGAUCA 819 TGATCTGA GGCTAGCTACAACGA AGAGTACT 2521 3643 UCUAUCAG A UCAUGCUG 820 CAGCATGA GGCTAGCTACAACGA AGATTTCA 2521 3646 AUCAGAUC A UCAUGACA 819 TGATCTGA GGCTAGCTACAACGA AGATTTCA 2521 3646 AUCAGAUC A UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA ATGATCTG 2523 3648 CAGAUCAU G CUGGACUG 822 CAGTCCAG GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG A CUGCUGGC 823 GCCAGCAG GGCTAGCTACAACGA ATGATCTG 2524 3656 GCUGGACU G CUGGACCA 824 TGTGCCAG GGCTAGCTACAACGA AGACTTCAGC 2526 3660 GACUGCUG C CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CCAGCAGC 2527 3662 CUGCUGGC A CAGAGACC 826 GGTCTCTG GGCTAGCTACAACGA CCAGCAGC 2528 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CCAGCAGC 2529	3566	ACAAAUGG A UGAGGACU	806	AGTCCTCA GGCTAGCTACAACGA CCATTTGT	2508
3581 CUUUUGCA G UCGCCUGA 809 TCAGGCGA GGCTAGCTACAACGA TGCAAAAG 2511 3584 UUGCAGUC G CCUGAGGG 810 CCCTCAGG GGCTAGCTACAACGA GACTGCAA 2512 3596 GAGGGAAG G CAUGAGGA 811 TCCTCATG GGCTAGCTACAACGA GACTGCAA 2512 3598 GGGAAGGC A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA CTTCCCTC 2513 3604 GCAUGAGG A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA GCCTTCCC 2514 3604 GCAUGAGG A UGAGAGCU 813 AGCTCTCA GGCTAGCTACAACGA CCTCATGC 2515 3610 GGAUGAGA G CUCCUGAG 814 CTCAGGAG GGCTAGCTACAACGA TCTCATCC 2516 3618 GCUCCUGA G UACUCUAC 815 GTAGAGTA GGCTAGCTACAACGA TCTCATCC 2516 3620 UCCUGAGU A CUCUACUC 816 GAGTAGGA GGCTAGCTACAACGA ACTCAGGA 2518 3625 AGUACUCU A CUCCUGAA 817 TTCAGGAG GGCTAGCTACAACGA ACTCAGGA 2519 3634 CUCCUGAA A UCUAUCAG 818 CTGATAGA GGCTAGCTACAACGA AGAGTACT 2519 3638 UGAAAUCU A UCAGAUCA 819 TGATCTGA GGCTAGCTACAACGA AGATTTCA 2521 3643 UCUAUCAG A UCAUGCUG 820 CAGCATGA GGCTAGCTACAACGA AGATTTCA 2521 3646 AUCAGAUC A UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA ATGATGA 2522 3646 AUCAGAUC A UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG A CUGCUGGC 823 GCCAGCAG GGCTAGCTACAACGA ATGATCTG 2524 3656 GCUGGACU G CUGGCACA 824 TGTGCCAG GGCTAGCTACAACGA AGACTTCAGC 2526 3660 GACUGCUG C CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2527 3662 CUGCUGGC A CAGAGACC 826 GGTCTCTG GGCTAGCTACAACGA CCAGCAGC 2528 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CCAGCAGC 2528	3572	GGAUGAGG A CUUUUGCA	807	TGCAAAAG GGCTAGCTACAACGA CCTCATCC	2509
3584 UUGCAGUC G CCUGAGGG 810 CCCTCAGG GGCTAGCTACAACGA GACTGCAA 2512 3596 GAGGGAAG G CAUGAGGA 811 TCCTCATG GGCTAGCTACAACGA CTTCCCTC 2513 3598 GGGAAGGC A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA GCCTTCCC 2514 3604 GCAUGAGG A UGAGGACU 813 AGCTCTCA GGCTAGCTACAACGA CCTCATGC 2515 3610 GGAUGAGA G CUCCUGAG 814 CTCAGGAG GGCTAGCTACAACGA TCTCATCC 2516 3618 GCUCCUGA G UACUCUAC 815 GTAGAGTA GGCTAGCTACAACGA TCTCAGCA 2517 3620 UCCUGAGU A CUCUUACUC 816 GAGTAGAG GGCTAGCTACAACGA ACTCAGGA 2518 3625 AGUACUCU A CUCCUGAA 817 TTCAGGAG GGCTAGCTACAACGA ACTCAGGA 2518 3634 CUCCUGAA A UCUAUCAG 818 CTGATAGA GGCTAGCTACAACGA AGAGTACT 2519 3634 CUCCUGAA A UCUAUCAG 818 CTGATAGA GGCTAGCTACAACGA AGAGTACT 2520 3638 UGAAAUCU A UCAGAUCA 819 TGATCTGA GGCTAGCTACAACGA AGATTTCA 2521 3643 UCUAUCAG A UCAUGCUG 820 CAGCATGA GGCTAGCTACAACGA AGATTTCA 2521 3646 AUCAGAUC A UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA CTGATAGA 2522 3646 AUCAGAUC A UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG A CUGCUGGC 822 CAGTCCAG GGCTAGCTACAACGA ATGATCTG 2524 3656 GCUGGACU G CUGGCACA 824 TGTGCCAG GGCTAGCTACAACGA AGATCTGA 2525 3660 GACUGCUG C CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CCAGCATG 2526 3660 GACUGCUG C CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2527 3662 CUGCUGG A CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2527 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CCAGCAGC 2526	3578	GGACUUUU G CAGUCGCC	808	GGCGACTG GGCTAGCTACAACGA AAAAGTCC	2510
3596 GAGGGAAG G CAUGAGGA 811 TCCTCATG GGCTAGCTACAACGA CTTCCCTC 2513 3598 GGGAAGGC A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA GCCTTCCC 2514 3604 GCAUGAGG A UGAGGACU 813 AGCTCTCA GGCTAGCTACAACGA CCTCATGC 2515 3610 GGAUGAGA G CUCCUGAG 814 CTCAGGAG GGCTAGCTACAACGA TCTCATCC 2516 3618 GCUCCUGA G UACUCUAC 815 GTAGAGTA GGCTAGCTACAACGA TCTCATCC 2516 3620 UCCUGAGU A CUCUACUC 816 GAGTAGAG GGCTAGCTACAACGA ACTCAGGA 2518 3625 AGUACUCU A CUCUGAA 817 TTCAGGAG GGCTAGCTACAACGA AGAGTACT 2519 3634 CUCCUGAA A UCUAUCAG 818 CTGATAGA GGCTAGCTACAACGA AGAGTACT 2519 3638 UGAAAUCU A UCAGAUCA 819 TGATCTGA GGCTAGCTACAACGA AGATTTCA 2521 3643 UCUAUCAG A UCAUGCUG 820 CAGCATGA GGCTAGCTACAACGA AGATTTCA 2521 3646 AUCAGAUC A UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA GATCTGAT 2523 3648 CAGAUCAU G CUGGACUG 822 CAGTCCAG GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG A CUGCUGGC 823 GCCAGCAG GGCTAGCTACAACGA ATGATCTG 2524 3656 GCUGGACU G CUGGCACA 824 TGTGCCAG GGCTAGCTACAACGA AGGATCT 2525 3656 GCUGGACU G CUGGCACA 824 TGTGCCAG GGCTAGCTACAACGA CCAGCATG 2525 3660 GACUGCUG G CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2527 3662 CUGCUGGC A CAGAGGACC 826 GGTCACCTACAACGA CAGCAGTC 2527 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CCAGCAGG 2528	3581	CUUUUGCA G UCGCCUGA	809	TCAGGCGA GGCTAGCTACAACGA TGCAAAAG	2511
3598 GGGAAGGC A UGAGGAUG 812 CATCCTCA GGCTAGCTACAACGA GCCTTCCC 2514 3604 GCAUGAGG A UGAGAGCU 813 AGCTCTCA GGCTAGCTACAACGA CCTCATGC 2515 3610 GGAUGAGA G CUCCUGAG 814 CTCAGGAG GGCTAGCTACAACGA TCTCATCC 2516 3618 GCUCCUGA G UACUCUAC 815 GTAGAGTA GGCTAGCTACAACGA TCTCATCC 2516 3620 UCCUGAGU A CUCUACUC 816 GAGTAGAG GGCTAGCTACAACGA ACTCAGGA 2518 3625 AGUACUCU A CUCCUGAA 817 TTCAGGAG GGCTAGCTACAACGA AGAGTACT 2519 3634 CUCCUGAA A UCUAUCAG 818 CTGATAGA GGCTAGCTACAACGA AGAGTACT 2519 3638 UGAAAUCU A UCAGAUCA 819 TGATCTGA GGCTAGCTACAACGA AGATTCA 2521 3643 UCUAUCAG A UCAUGCUG 820 CAGCATGA GGCTAGCTACAACGA AGATTTCA 2521 3644 UCUAUCAG A UCAUGCUG 820 CAGCATGA GGCTAGCTACAACGA CTGATAGA 2522 3646 AUCAGAUC A UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA GATCTGAT 2523 3648 CAGAUCAU G CUGGACUG 822 CAGTCCAG GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG A CUGCUGGC 823 GCCAGCAG GGCTAGCTACAACGA ATGATCTG 2524 3656 GCUGGACU G CUGGCACA 824 TGTGCCAG GGCTAGCTACAACGA CCAGCATG 2525 3660 GACUGCUG G CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2527 3662 CUGCUGGC A CAGAGACC 826 GGTTAGCTACAACGA CAGCAGTC 2528 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CTCTGTGC 2529	3584	UUGCAGUC G CCUGAGGG	810	CCCTCAGG GGCTAGCTACAACGA GACTGCAA	2512
3604 GCAUGAGG A UGAGAGCU 813 AGCTCTCA GGCTAGCTACAACGA CCTCATGC 2515 3610 GGAUGAGA G CUCCUGAG 814 CTCAGGAG GGCTAGCTACAACGA TCTCATCC 2516 3618 GCUCCUGA G UACUCUAC 815 GTAGAGTA GGCTAGCTACAACGA TCAGGAGC 2517 3620 UCCUGAGU A CUCUACUC 816 GAGTAGAG GGCTAGCTACAACGA ACTCAGGA 2518 3625 AGUACUCU A CUCCUGAA 817 TTCAGGAG GGCTAGCTACAACGA AGAGTACT 2519 3634 CUCCUGAA A UCUAUCAG 818 CTGATAGA GGCTAGCTACAACGA AGAGTACT 2519 3638 UGAAAUCU A UCAGAUCA 819 TGATCTGA GGCTAGCTACAACGA AGATTCA 2521 3643 UCUAUCAG A UCAUGCUG 820 CAGCATGA GGCTAGCTACAACGA CTGATAGA 2522 3646 AUCAGAUC A UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA CTGATAGA 2522 3648 CAGAUCAU G CUGGACUG 822 CAGTCCAG GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG A CUGCUGGC 823 GCCAGCAG GGCTAGCTACAACGA ATGATCTG 2524 3656 GCUGGACU G CUGGCACA 824 TGTGCCAG GGCTAGCTACAACGA CCAGCATG 2525 3660 GACUGCUG G CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2527 3662 CUGCUGGC A CAGAGACC 826 GGTCAGCTACAACGA CAGCAGTC 2528 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CCAGCAGG 2528	3596	GAGGGAAG G CAUGAGGA	811	TCCTCATG GGCTAGCTACAACGA CTTCCCTC	2513
3610 GGAUGAGA G CUCCUGAG 814 CTCAGGAG GGCTAGCTACAACGA TCTCATCC 2516 3618 GCUCCUGA G UACUCUAC 815 GTAGAGTA GGCTAGCTACAACGA TCTCATCC 2517 3620 UCCUGAGU A CUCUACUC 816 GAGTAGAG GGCTAGCTACAACGA ACTCAGGA 2518 3625 AGUACUCU A CUCCUGAA 817 TTCAGGAG GGCTAGCTACAACGA AGAGTACT 2519 3634 CUCCUGAA A UCUAUCAG 818 CTGATAGA GGCTAGCTACAACGA TCCAGGAG 2520 3638 UGAAAUCU A UCAGAUCA 819 TGATCTGA GGCTAGCTACAACGA AGATTTCA 2521 3643 UCUAUCAG A UCAUGCUG 820 CAGCATGA GGCTAGCTACAACGA CTGATAGA 2522 3646 AUCAGAUC A UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA GATCTGAT 2523 3648 CAGAUCAU G CUGGACUG 822 CAGTCCAG GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG A CUGCUGGC 823 GCCAGCAG GGCTAGCTACAACGA ATGATCTG 2524 3656 GCUGGACU G CUGGCACA 824 TGTGCCAG GGCTAGCTACAACGA AGTCCAGC 2526 3660 GACUGCUG G CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2527 3662 CUGCUGGC A CAGAGACC 826 GGTTAGCTACAACGA CAGCAGTC 2528 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CTCTGTGC 2529	3598	GGGAAGGC A UGAGGAUG	812	CATCCTCA GGCTAGCTACAACGA GCCTTCCC	2514
3618 GCUCCUGA G UACUCUAC 815 GTAGAGTA GGCTAGCTACAACGA TCAGGAGC 2517 3620 UCCUGAGU A CUCUACUC 816 GAGTAGAG GGCTAGCTACAACGA ACTCAGGA 2518 3625 AGUACUCU A CUCCUGAA 817 TTCAGGAG GGCTAGCTACAACGA AGAGTACT 2519 3634 CUCCUGAA A UCUAUCAG 818 CTGATAGA GGCTAGCTACAACGA TCAGGAG 2520 3638 UGAAAUCU A UCAGAUCA 819 TGATCTGA GGCTAGCTACAACGA AGATTTCA 2521 3643 UCUAUCAG A UCAUGCUG 820 CAGCATGA GGCTAGCTACAACGA AGATTTCA 2521 3646 AUCAGAUC A UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA GATCTGAT 2523 3648 CAGAUCAU G CUGGACUG 822 CAGTCCAG GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG A CUGCUGGC 823 GCCAGCAG GGCTAGCTACAACGA ATGATCTG 2524 3656 GCUGGACU G CUGGCACA 824 TGTGCCAG GGCTAGCTACAACGA CCAGCATG 2525 3660 GACUGCUG G CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA AGTCCAGC 2526 3660 GACUGCUG G CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2527 3662 CUGCUGGC A CAGAGACC 826 GGTCTCTG GGCTAGCTACAACGA CAGCAGTC 2528 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CTCTGTGC 2529	3604	GCAUGAGG A UGAGAGCU	813	AGCTCTCA GGCTAGCTACAACGA CCTCATGC	2515
3620 UCCUGAGU A CUCUACUC 816 GAGTAGAG GGCTAGCTACAACGA ACTCAGGA 2518 3625 AGUACUCU A CUCCUGAA 817 TTCAGGAG GGCTAGCTACAACGA AGAGTACT 2519 3634 CUCCUGAA A UCUAUCAG 818 CTGATAGA GGCTAGCTACAACGA TTCAGGAG 2520 3638 UGAAAUCU A UCAGAUCA 819 TGATCTGA GGCTAGCTACAACGA AGATTTCA 2521 3643 UCUAUCAG A UCAUGCUG 820 CAGCATGA GGCTAGCTACAACGA CTGATAGA 2522 3646 AUCAGAUC A UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA GATCTGAT 2523 3648 CAGAUCAU G CUGGACUG 822 CAGTCCAG GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG A CUGCUGGC 823 GCCAGCAG GGCTAGCTACAACGA CCAGCATG 2525 3656 GCUGGACU G CUGGCACA 824 TGTGCCAG GGCTAGCTACAACGA AGTCCAGC 2526 3660 GACUGCUG G CACAGAGA 824 TGTGCCAG GGCTAGCTACAACGA AGTCCAGC 2527 3662 CUGCUGGC A CAGAGACC 826 GGTTCTGT GGCTAGCTACAACGA CAGCAGTC 2527 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CTCTGTGC 2529	3610	GGAUGAGA G CUCCUGAG	814	CTCAGGAG GGCTAGCTACAACGA TCTCATCC	2516
3625 AGUACUCU A CUCCUGAA 817 TTCAGGAG GGCTAGCTACAACGA AGAGTACT 2519 3634 CUCCUGAA A UCUAUCAG 818 CTGATAGA GGCTAGCTACAACGA TTCAGGAG 2520 3638 UGAAAUCU A UCAGAUCA 819 TGATCTGA GGCTAGCTACAACGA AGATTTCA 2521 3643 UCUAUCAG A UCAUGCUG 820 CAGCATGA GGCTAGCTACAACGA CTGATAGA 2522 3646 AUCAGAUC A UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA GATCTGAT 2523 3648 CAGAUCAU G CUGGACUG 822 CAGTCCAG GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG A CUGCUGGC 823 GCCAGCAG GGCTAGCTACAACGA CCAGCATG 2525 3656 GCUGGACU G CUGGCACA 824 TGTGCCAG GGCTAGCTACAACGA AGTCCAGC 2526 3660 GACUGCUG G CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2527 3662 CUGCUGGC A CAGAGACC 826 GGTTAGCTACAACGA CAGCAGTC 2528 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CTCTGTGC 2529	3618	GCUCCUGA G UACUCUAC	815	GTAGAGTA GGCTAGCTACAACGA TCAGGAGC	2517
3634 CUCCUGAA A UCUAUCAG 818 CTGATAGA GGCTAGCTACAACGA TTCAGGAG 2520 3638 UGAAAUCU A UCAGAUCA 819 TGATCTGA GGCTAGCTACAACGA AGATTTCA 2521 3643 UCUAUCAG A UCAUGCUG 820 CAGCATGA GGCTAGCTACAACGA CTGATAGA 2522 3646 AUCAGAUC A UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA GATCTGAT 2523 3648 CAGAUCAU G CUGGACUG 822 CAGTCCAG GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG A CUGCUGGC 823 GCCAGCAG GGCTAGCTACAACGA CCAGCATG 2525 3656 GCUGGACU G CUGGCACA 824 TGTGCCAG GGCTAGCTACAACGA AGTCCAGC 2526 3660 GACUGCUG G CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2527 3662 CUGCUGGC A CAGAGACC 826 GGTCTCTG GGCTAGCTACAACGA CAGCAGTC 2528 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CTCTGTGC 2529	3620	UCCUGAGU A CUCUACUC	816	GAGTAGAG GGCTAGCTACAACGA ACTCAGGA	2518
3638 UGAAAUCU A UCAGAUCA 819 TGATCTGA GGCTAGCTACAACGA AGATTTCA 2521 3643 UCUAUCAG A UCAUGCUG 820 CAGCATGA GGCTAGCTACAACGA CTGATAGA 2522 3646 AUCAGAUC A UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA GATCTGAT 2523 3648 CAGAUCAU G CUGGACUG 822 CAGTCCAG GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG A CUGCUGGC 823 GCCAGCAG GGCTAGCTACAACGA CCAGCATG 2525 3656 GCUGGACU G CUGGCACA 824 TGTGCCAG GGCTAGCTACAACGA AGTCCAGC 2526 3660 GACUGCUG G CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2527 3662 CUGCUGGC A CAGAGACC 826 GGTCTCTG GGCTAGCTACAACGA CAGCAGTC 2528 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CTCTGTGC 2529	3625	AGUACUCU A CUCCUGAA	817	TTCAGGAG GGCTAGCTACAACGA AGAGTACT	2519
3643 UCUAUCAG A UCAUGCUG 820 CAGCATGA GGCTAGCTACAACGA CTGATAGA 2522 3646 AUCAGAUC A UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA GATCTGAT 2523 3648 CAGAUCAU G CUGGACUG 822 CAGTCCAG GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG A CUGCUGGC 823 GCCAGCAG GGCTAGCTACAACGA CCAGCATG 2525 3656 GCUGGACU G CUGGCACA 824 TGTGCCAG GGCTAGCTACAACGA AGTCCAGC 2526 3660 GACUGCUG G CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2527 3662 CUGCUGGC A CAGAGACC 826 GGTCTCTG GGCTAGCTACAACGA CAGCAGTC 2528 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CTCTGTGC 2529	3634	CUCCUGAA A UCUAUCAG	818	CTGATAGA GGCTAGCTACAACGA TTCAGGAG	2520
3646 AUCAGAUC A UGCUGGAC 821 GTCCAGCA GGCTAGCTACAACGA GATCTGAT 2523 3648 CAGAUCAU G CUGGACUG 822 CAGTCCAG GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG A CUGCUGGC 823 GCCAGCAG GGCTAGCTACAACGA CCAGCATG 2525 3656 GCUGGACU G CUGGCACA 824 TGTGCCAG GGCTAGCTACAACGA AGTCCAGC 2526 3660 GACUGCUG G CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2527 3662 CUGCUGGC A CAGAGACC 826 GGTCTCTG GGCTAGCTACAACGA GCCAGCAG 2528 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CTCTGTGC 2529	3638	UGAAAUCU A UCAGAUCA	819	TGATCTGA GGCTAGCTACAACGA AGATTTCA	2521
3648 CAGAUCAU G CUGGACUG 822 CAGTCCAG GGCTAGCTACAACGA ATGATCTG 2524 3653 CAUGCUGG A CUGCUGGC 823 GCCAGCAG GGCTAGCTACAACGA CCAGCATG 2525 3656 GCUGGACU G CUGGCACA 824 TGTGCCAG GGCTAGCTACAACGA AGTCCAGC 2526 3660 GACUGCUG G CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2527 3662 CUGCUGGC A CAGAGACC 826 GGTCTCTG GGCTAGCTACAACGA GCCAGCAG 2528 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CTCTGTGC 2529	3643	UCUAUCAG A UCAUGCUG	820	CAGCATGA GGCTAGCTACAACGA CTGATAGA	2522
3653 CAUGCUGG A CUGCUGGC 823 GCCAGCAG GGCTAGCTACAACGA CCAGCATG 2525 3656 GCUGGACU G CUGGCACA 824 TGTGCCAG GGCTAGCTACAACGA AGTCCAGC 2526 3660 GACUGCUG G CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2527 3662 CUGCUGGC A CAGAGACC 826 GGTCTCTG GGCTAGCTACAACGA GCCAGCAG 2528 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CTCTGTGC 2529	3646	AUCAGAUC A UGCUGGAC	821	GTCCAGCA GGCTAGCTACAACGA GATCTGAT	2523
3656 GCUGGACU G CUGGCACA 824 TGTGCCAG GGCTAGCTACAACGA AGTCCAGC 2526 3660 GACUGCUG G CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2527 3662 CUGCUGGC A CAGAGACC 826 GGTCTCTG GGCTAGCTACAACGA GCCAGCAG 2528 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CTCTGTGC 2529	3648	CAGAUCAU G CUGGACUG	822	CAGTCCAG GGCTAGCTACAACGA ATGATCTG	2524
3660 GACUGCUG G CACAGAGA 825 TCTCTGTG GGCTAGCTACAACGA CAGCAGTC 2527 3662 CUGCUGGC A CAGAGACC 826 GGTCTCTG GGCTAGCTACAACGA GCCAGCAG 2528 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CTCTGTGC 2529	3653	CAUGCUGG A CUGCUGGC	823	GCCAGCAG GGCTAGCTACAACGA CCAGCATG	2525
3662 CUGCUGGC A CAGAGACC 826 GGTCTCTG GGCTAGCTACAACGA GCCAGCAG 2528 3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CTCTGTGC 2529	3656	GCUGGACU G CUGGCACA	824	TGTGCCAG GGCTAGCTACAACGA AGTCCAGC	2526
3668 GCACAGAG A CCCAAAAG 827 CTTTTGGG GGCTAGCTACAACGA CTCTGTGC 2529	3660	GACUGCUG G CACAGAGA	825	TCTCTGTG GGCTAGCTACAACGA CAGCAGTC	2527
	3662	CUGCUGGC A CAGAGACC	826	GGTCTCTG GGCTAGCTACAACGA GCCAGCAG	2528
3681 AAAGAAAG G CCAAGAUU 828 AATCTTGG GGCTAGCTACAACGA CTTTCTTT 2530	3668	GCACAGAG A CCCAAAAG	827	CTTTTGGG GGCTAGCTACAACGA CTCTGTGC	2529
	3681	AAAGAAAG G CCAAGAUU	828	AATCTTGG GGCTAGCTACAACGA CTTTCTTT	2530

3691 AGRICAMA & UUUGCAGA 829 TCTGCANA GGCTAGCTACACAGA ARATCTTO 2513
3596
3700 CAGARCUU G UGGARARA 832 TTTTTCCA GGCTAGCTACACGA AAGTTCTC 2534 3708 GUGGARARA A CURAGUUGA 833 TCACCTAG GGCTAGCTACACGA TTTTCCAC 2535 3713 AARACURAG GUGAUUUCC 834 GCARARCA GGCTAGCTACACGA CTAGTTT 2536 3716 ACURGGUG A UUUCCUUC 835 GRAGCARA GGCTAGCTACACGA CTAGTTT 2536 3727 UGCUUCAR G CARAUGUA 836 GCTTGAGA GGCTAGCTACACGA CACCTAGT 2537 3727 UGCUUCAR G CARAUGUA 837 TACATTTG GGCTAGCTACACGA ARATCACC 2538 3731 UCARGCAR A UGUACACC 838 GCTTGACA GGCTAGCTACACGA TTGACTGA 2539 3731 UCARGCAR A UGUACACC 838 GCTTGTACA GGCTAGCTACACGA TTGCCTTGA 2540 3733 ARCCARAU G URCARCAG 839 CTTGTTATA GGCTAGCTACACGA TTTTCCTT 2541 3736 GCRARUGU A CACCAGGA 840 TCCTGTTG GGCTAGCTACACGA TTTTCCTT 2541 3738 ARGCARAU G URCARCAG 841 CCATCCTG GGCTAGCTACACGA TTTTCCTT 2543 3746 ACAGGAUG G URGUARAG 842 CTTTACCA GGCTAGCTACACGA TCTTCCTT 2543 3746 ACAGGAUG G URGUARAG 842 CTTTACCA GGCTAGCTACACGA CCTTCTTT 2543 3752 UGGURAGA C CUACAUCC 844 GGATGTAG GGCTAGCTACACGA CCTCCTGT 2545 3755 URAGGACU A CAUCCCAR 845 TTGGGATA GGCTAGCTACACGA CCTCCTGT 2546 3755 URAGGACU A CAUCCCAR 845 TTGGGATA GGCTAGCTACACGA CTTCTCT 2547 3767 ACAGCUCA A UCCCARUC 846 GRATTGGG GGCTAGCTACACGA CTTCTCTA 2547 3768 ACAUCCCA R UGCCARUC 846 GRATTGGG GGCTAGCTACACGA CTTCTTTA 2547 3769 CALUCAU A UGCCARUC 846 GRATTGGG GGCTAGCTACACGA GTAGTTT 2547 3767 CCCARUCA R UGCCARUC 846 GRATTGGG GGCTAGCTACACGA GTAGTTT 2547 3767 CCCARUCA R UGCCARUC 846 GRATTGGG GGCTAGCTACACGA TTATTGGT 2549 3769 CARUCACA R UGCCARUC 848 GRATTGGG GGCTAGCTACACGA TTGGATT 2551 3772 UCARUCCC R UGCCARUC 849 GRATTGGG GGCTAGCTACACGA TTGGATT 2551 3774 ARGCCAU A UGCCARUC 850 GRATTGGG GGCTAGCTACACGA TTGGATT 2551 3774 ARGCCAU A UGCCARUC 850 GCTAGCTACACGA GAGCATTCA 2556 3786 GACAGGAA R URGUGGGU 851 CCTGTAGG GGCTAGCTACACGA ATTGGAT 2551 3787 CCCARUCCU A UGCCARUC 850 GCTAGCTACAACGA ATTGGATT 2551 3788 AGGAARUA GUUCCARUC 850 GCTAGCTACAACGA ATTGCTT 2555 3789 GRAGGAGA GUUCCARUC 850 GCTAGCTACAACGA ATTGCTT 2556 3789 GRAGGAGA GUUCCARUA 850 GCTAGCTACAACGA ATTCCTT 2556 3880 GUUCAGU A CUUCCARU 850 GTAGATACAACGA ATTCCTT 2556 3881 CUUCAGU A CUUCCARU 860 AGAGAAGA G
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3907 UCAAGUUC A UGAGCCUG 877 CAGGCTCA GGCTAGCTACAACGA GAACTTGA 2579
3911 GUUCAUGA G CCUGGAAA 878 TTTCCAGG GGCTAGCTACAACGA TCATGAAC 2580
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4017 AUGCUGAA G GCGUUCAC 900 GTGAAGC G GCUGAAGC G CUUCACCU 901 AGGTGAAG GCTTACATCAACGA GCTTCAGC 2603 4019 GCUGAAGC G CUUCACCU 901 AGGTGAAG GGCTACAACGA GAAGCGC 2603 4024 AGGGCUUC A CUGGACCU 902 AGTTCCAG GGCTACCTACAACGA CAGTCAGC 2605 4030 UCACCUGG A CUGACAGC 903 GCTTGCAG GGCTACCTACAACGA CAGTCCAG 2606 4037 GACUGACA G CAAACCCA 905 TGGGTTTG GGCTACAACGA TGTCAGT 2607 4041 GACAGCAA A CCCAAGGC 906 GCCTTGGG GGCTACCAACGA TTGCTGT 2608 4048 AACCCAAG G CUCCAAGAU 908 ATCTTGAG GGCTACCAACGA CTTGAGCT 2610 4053 AAAGCCUC G CUCAAGAU 908 ATCTTGAG GGCTACCAACGA CTTGAACGA CTTGAGCT 2610 4060 CGCUCAAG A UUGAGAG 910 CTCTCAAG GGCTACCAACGA CTTGAACGA CTTGAGCT 2611 4072 ACUUGAGA G UUACAGAG 910 CTCTCAAG GGCTACCAACGA CTTCAACGA CTTCAACGA CTTCCAACGA CTACAACGA CTACAACGA CAGAAACGA CAGAAACGA CAGAAACGA CAGAAACGA CAGAAACGA CAGA	4009	CCUCUCCC A UGCUGAAG	898	CTTCAGCA GGCTAGCTACAACGA GGGAGAGG	2600
4019 GCUGAAGC G CUUCACCU 901 AGGTGAAG GGCTACCACGA GACTCCC 2603 4024 AGCGCUUC A CCUGGACU 902 AGTCCAGG GGCTACCACACGA GAGCGCT 2504 4030 UCACCUGG A CUGACAGC 903 GCTGTCAG GGCTACCACACGA CAGGACCA 2605 4034 CUGGACUG A CAGCAAAC 904 GTTTGCTG GGCTACCTACAACGA CAGTACCACGA CAGCA 2606 4037 GACUGACA G CAAACCCA 905 TGGGTTTGT GGCTACCAACGA TTGCTGCT 2607 4041 GACAGCAA A CCCAAGGC 906 GCCTTGGG GGCTAGCTACAACGA TTGCTGTC 2608 4048 AACCCAAG G CUCAAGAU 906 GCCTTGAG GGCTACCAACGA CTTGGGTT 2610 4053 AAGGCUC G CUCAAGAU 908 ATCTTGAG GGCTACCAACGA CTTGAGCT 2610 4060 CGCUCAAG A UUGAAGG 910 CTCTCAAG GGCTACCAACGA CTTCAACGA 2611 4072 ACUUGAGA G UAACCAGU 911 ACTGGTACAACGA CTTCAACGA CTCTCAAG GGCTACCAACGA TCTCAAGTA 4072 ACUUGAGA G UAAAGUA 912 TTACTGG GGCTACCAACGA TCTCAACGA TCTCAAGTA 2614 4073 AGUAACCA G UAAAGUA 913 TACTTTACTGG GGCTACCAACGA TCTCAACGA TCTCAAC	4011	UCUCCCAU G CUGAAGOG	899	CGCTTCAG GGCTAGCTACAACGA ATGGGAGA	2601
4024 AGGGCUUC A CCUGGACU 902 AGTCCAGG GGCTAGCTACAACGA GAAGGGC 2504 4030 UCACCUGG A CUGACAGC 903 GCTGTCAG GGCTAGCTACAACGA CCAGTGA 2605 4034 CUGACAG A CAGCAAAC 904 GTTTGCTG GGCTAGCTACAACGA CAGTCCAG 2606 4037 GACUGACA G CAAACCCA 905 GCTTTGGG GGCTAGCTACAACGA TGTCAGTC 2607 4041 GACACCAA G CCUCGCUC 907 GAGCGAGG GGCTAGCTACAACGA CTTCGGTT 2609 4048 AACCCAAG G CCUCAGAU 908 ATCTTGAG GGCTAGCTACAACGA CTTGAGCT 2610 4053 AAGGCCUC G CUCAAGAU 908 ATCTTGAG GGCTAGCTACAACGA CTTGAGC 2611 4060 CGCUCAAGA UUGACAGU 910 CAAGTTACAACGA CTTCAACGA CAATCTTC 2612 4072 ACUUGAGA G UAAACAGU 911 ACTGGTTA GGCTACAACGA TCTCAAGT 2614 4073 AGUACAGA 912 TTTACTGG GGCTAGCTACAACGA TCTCAACT 2614 4074 AGUAGAGA 912 TTTACTGG GGCTAGCTACAACGA TCTCAACT 2614 4075 UGAGAGGA UAAAAGUA 912 TTTACTTG GGCTAGCTACAACGA TCTTCAA 2615 <td>4017</td> <td>AUGCUGAA G CGCUUCAC</td> <td>900</td> <td>GTGAAGCG GGCTAGCTACAACGA TTCAGCAT</td> <td>2602</td>	4017	AUGCUGAA G CGCUUCAC	900	GTGAAGCG GGCTAGCTACAACGA TTCAGCAT	2602
4030 UCACCUGG A CUGACAGC 903 GCTGTCAG GGCTAGCTACAACGA CCAGTGA 2605 4034 CUGGACUG A CAGCAAAC 904 GTTTGCTG GGCTACAACGA CAGTCCAG 2606 4037 GACUGACA G CAAACCCA 905 TGGGTTGG GGCTACAACGA TGCCAGTC 2607 4041 GACAGCAA A CCCAAGGC 906 GCCTTGGG GGCTAGCTACAACGA TTGCTGCT 2608 4048 AACCCAAG G CCUCGCUC 907 GAGCGAGG GGCTAGCTACAACGA CTTGGGTT 2609 4053 AAAGCCUC G CUCAGGU 908 ATCTTGAG GGCTAGCTACAACGA CTTGGGCT 2610 4053 AAAGCCUC G CUCAAGAU 908 ATCTTGAG GGCTAGCTACAACGA CTTGAGC 2611 4060 CGCUCAAG A UUGACAGU 910 CTCTCAAG GGCTAGCTACAACGA CTTCAAGC 2611 4072 ACUUGAGA G UAAACCAGU 911 ACTGGTTA GGCTACAACGA TCTCAAGC 2613 4075 UGAGAGAGU 912 TTTACTG GGCTAGCTACAACGA TCCTCAA 2614 4075 UGAGACAG GUAAAGGU 913 ACTCCTTA GGCTAGCTACAACGA TCCTTCA 2614 4076 AGUAACA G UAAAGGU 913 ACTCCTTA GGCTAGCTACAACGA TCCTTCA 2615 <	4019	GCUGAAGC G CUUCACCU	901	AGGTGAAG GGCTAGCTACAACGA GCTTCAGC	2603
4034 CUGGACUG A CAGCANAC 904 GTTTGCTG GGCTAGCACAGCA CAGTCCAC 2606 4037 GACUGACA G CAAACCCA 905 TGGGTTTG GGCTACAACGA TGTCAGTC 2607 4041 GACCAGGA A CCCAAGGC 906 GCCTTGGG GGCTAGCTACAACGA TGTCGTC 2608 4048 AACCCAAG G CCUCGCUC 907 GAGCGAG GGCTAGCTACAACGA CTTGGGTT 2609 4053 AAGGCCUC G CUCAAGAU 908 ATCTTGAG GGCTAGCTACAACGA CTTGGGCT 2610 4060 CGCUCAAG A UUGACAGU 909 CAAGTCAA GGCTAACTACACGA CTTGAGC 2611 4064 CAAGAUUG A CUUGAGAG 910 CTCTCAAG GGCTAACTACAACGA CAATCTTC 2612 4072 ACUUGAGA G UAAACCAGU 911 ACTGGTTA GGCTACAACGA TACTCTAA 2613 4075 UGAGAGUA A CCAGUAAA 912 TTTACTGG GGCTACAACGA TACTCTAA 2614 4079 AGUAACCA G UAAAGUA 913 TACTTTTA GGCTAGCTACAACGA TCTTACT 2615 4085 CAGUAAAA G UAAGGAGU 914 ACTCCTTA GGCTAGCTACAACGA TCTTACT 2616 4098 GAGUCGGG G CUGUCUGA 915 ACCCCGA GGCTAGCTACAACGA TCCTTACT 2611 4098 GAGUCGGG G CUGUCUGA 916 TCAGACAG GGCTAGCTACAACGA TCCCAGAC 2621 4101 UCGGGGC	4024	AGCGCUUC A CCUGGACU	902	AGTCCAGG GGCTAGCTACAACGA GAAGCGCT	2604
4037 GACUGACA G CAAACCCA 905 TGGGTTTG GGCTAGCTACAACGA TGTCAGTC 2607 4041 GACAGCAA A CCCAAGGC 906 GCCTTGGG GGCTAGCTACAACGA TTGCTGTC 2608 4048 AACCCAAG G CCUCGCUC 907 GAGCGAGG GGCTAGCTACAACGA CTTGGGTT 2609 4053 AAGGCCUC G CUCAAGAU 908 ATCTTCAG GGCTAGCTACAACGA GAGGCCTT 2610 4060 CGCUCAAG A UUGACUUG 909 CAAGTCAA GGCTAGCTACAACGA CTTCTAGGG 2611 4064 CAAGAUUG A CUUGAGAG 910 CTCTCAAG GGCTAGCTACAACGA CATCTTC 2612 4072 ACUUGAGA G UAACCAGU 911 ACTGGTTA GGCTAGCAACGA TCTCAACGT 2613 4075 UGAGAGUA A CCAGUAAA 912 TTTACTG GGCTAGCTACAACGA TCTCAACGA 2614 4079 AGUAACCA G UAAAAGUA 913 TACTTTTA GGCTAGCTACAACGA TCCTTACT 2615 4085 CAGUAAAA G UAAGGAUU 914 ACTCCTTA GGCTACAACGA TCCTTACT 2616 4092 AGUAAGA G UCGAGAU 915 AGCCCCGA GGCTAACCAACGA TCCTTACT 2617 4108 GAGUCGGG G CUGUCUGA 916 TCAGACAG GGCTAACCAACGA ACCAACGA CCCCAACGA 26	4030	UCACCUGG A CUGACAGC	903	GCTGTCAG GGCTAGCTACAACGA CCAGGTGA	2605
4041 GACAGCAA A CCCAAGGC 906 GCCTTGGG GGCTAGCTACAACGA TTGCTGTC 2608 4048 AACCCAAG G CCUCGCUC 907 GAGCGAGG GGCTAGCTACAACGA CTTGGGTT 2609 4053 AAGGCCUC G CUCAAGAU 908 ATCTTGAG GGCTAGCTACAACGA GAGGCCTT 2610 4060 CGCUCAAG A UUGACUG 909 CAAGTCAA GGCTAGCTACAACGA CTTGAGCG 2611 4064 CAAGAUGA A CUUGAGAG 910 CTCTCAAG GGCTAGCTACAACGA CAATCTTG 2612 4072 ACUUGAGA G UAACCAGU 911 ACTGGTTA GGCTAGCTACAACGA TCTCAACGA 2613 4075 UGAGAGUA A CCAGUAAA 912 TTTACTGG GGCTAGCTACAACGA TCTCTCA 2614 4079 AGUAACCA G UAAAGGUA 912 TTTACTGG GGCTAGCTACAACGA TACTTCA 2615 4085 CAGUAAAA G UAAGGAGU 914 ACTCCTTA GGCTAGCTACAACGA TTTTACTC 2616 4092 AGUAAGA G UGGGGCU 915 ACGCCCGA GGCTAGCTACAACGA TCTTACTC 2617 4098 GAGUCGG G CUGUCUGA 916 TCAGACAG GGCTAGCTACAACGA TCCAACGA TCTACCACGA CCCCCAA 2619 4106 GCUGUCUG A UGGACAGG 918 TCCTGCAG GGCTAGCTACAACGA ATCCAACGA AT	4034	CUGGACUG A CAGCAAAC	904	GTTTGCTG GGCTAGCTACAACGA CAGTCCAG	2606 .
4048 AACCCAAG G CCUCGCUC 907 GAGCGAGG GCCTACCTACAACGA CTTGGGTT 2609 4053 AAGGCCUC G CUCAAGAU 908 ATCTTGAG GGCTACCTACAACGA GAGGCCTT 2610 4060 CGCUCAAG A UUGACUUG 909 CAAGTCAA GGCTACCTACAACGA CTTGAGCG 2611 4064 CAAGAUUG A CUUGAGAG 910 CTCTCAAG GGCTACCTACAACGA CAATCTTG 2612 4072 ACUUGAGA G UAACCAGU 911 ACTGGTTA GGCTACCTACAACGA TCTCAAGT 2613 4075 UGAGAGUA A CCAGUAAA 912 TTTACTG GGCTAGCTACAACGA TACTCTCA 2614 4079 AGUAACCA G UAAAGUA 913 TACTTTTA GGCTACCAACGA TACTCTCA 2615 4085 CAGUAAAA G UAAGGAGU 914 ACTCCTTA GGCTACAACGA TCTTACTAC 2616 4092 AGUAGGG G CUGUCUGA 915 AGCCCCGA GGCTACCTACAACGA TCCTTACT 2617 4098 GAGUCGG G CUGUCUGA 916 TCAGACAG GGCTACCTACAACGA AGCCCCA 2619 4101 UCGGGGCU G UCDGAUGU 917 ACATCAGA GGCTACCTACAACGA AGCCCCA 2620 4108 UGUCUGA A UGUCAGCA 918 TGCTGCTA GGCTACCAACGA ATCAGCA 2621 <td>4037</td> <td>GACUGACA G CAAACCCA</td> <td>905</td> <td>TGGGTTTG GGCTAGCTACAACGA TGTCAGTC</td> <td>2607</td>	4037	GACUGACA G CAAACCCA	905	TGGGTTTG GGCTAGCTACAACGA TGTCAGTC	2607
AAGGCCUC G CUCAAGAU 908 ATCTTGAG GGCTAGCTACAACGA GAGGCCTT 2610 4060 CGCUCAAG A UUGACUUG 909 CAAGTCAA GGCTAGCTACAACGA CTTGAGCG 2611 4064 CAAGAUUG A CUUGAGAG 910 CTCTCAAG GGCTAGCTACAACGA CAATCTTG 2612 4072 ACUUGAGA G UAACCAGU 911 ACTGGTTA GGCTAGCTACAACGA TCTCAAGT 2613 4075 UGAGAGUA A CCAGUAAA 912 TTTACTGG GGCTAGCTACAACGA TACTCTCA 2614 4079 AGUAACCA G UAAAAGUA 913 TACTTTTA GGCTAGCTACAACGA TACTCTCA 2614 4079 AGUAACCA G UAAAAGUA 913 TACTTTTA GGCTAGCTACAACGA TGGTTACT 2615 4085 CAGUAAAA G UAAGGAGU 914 ACTCCTTA GGCTAGCTACAACGA TGTTTACTG 2616 4092 AGUAAGGA G UCGGGGCU 915 AGCCCCGA GGCTAGCTACAACGA TCCTTACT 2617 4098 GAGUCGGG G CUGUCUGA 916 TCAGACAG GGCTAGCTACAACGA TCCTTACT 2618 4101 UCGGGGCU G UCUGAUGU 917 ACATCAGA GGCTAGCTACAACGA AGCCCCGA 2619 4106 GCUGUCUG A UGUCAGCA 918 TGCTGACA GGCTAGCTACAACGA AGCCCCGA 2620 4108 UGUCUGAU G UCAGCAGG 919 CCTGCTGAC GGCTAGCTACAACGA ATCAGACA 2621 4112 UGAUGUCA G CAGGCCCA 920 TGGGCCTG GGCTAGCTACAACGA ATCAGACA 2622 4114 UGAUGUCU G CCAGUUU 921 AAACTGGG GGCTAGCTACAACGA TGACATCA 2622 4121 CAGGCCCA G UUUCUGCC 922 GGCTAGAA GGCTAGCTACAACGA TGACATCA 2622 4121 CAGGCCCA G UUUCUGCC 922 GGCTAGAA GGCTAGCTACAACGA TGACATCA 2623 4121 CAGGCCCA G UUUCUGCC 922 GGCTAGAA GGCTAGCTACAACGA TGACATCA 2623 4121 CAGGCCCA G UUUCUGCC 922 GGCTAGAA GGCTAGCTACAACGA TGACATCA 2623 4121 CAGGCCCA G UUUCUGCC 922 GGCTAGAA GGCTAGCTACAACGA TGACATCA 2623 4121 CAGGCCCA G UUCCAGCU 924 AGCTGGAA GGCTAGCTACAACGA TGACATCA 2623 4121 CAGGCCCA G UUCCAGCU 924 AGCTGGAA GGCTAGCTACAACGA TGACATCA 2623 4130 UUUCUGCC A UUCCAGCU 924 AGCTGGAA GGCTAGCTACAACGA GGCAAAA 2626 4131 UUCCAGCU G UGGGCACG 926 CTGCCCA GGCTAGCTACAACGA AGCAACGC 2630 4143 AGCUGGG C CAGUCAG 927 CTGACCTG GGCTAGCTACAACGA AGCAACGC 2629 4144 AGCUGGGC A CGUCAGG 927 CTGACCTG GGCTAGCTACAACGA AGCACGC 2630 4147 GUGGGCAC G UCAGCGAA 929 TTCGCTGA GGCTAGCTACAACGA GCCCACAGC 2630 4147 GUGGGCAC G UCAGCGAA 929 TTCGCTGA GGCTAGCTACAACGA GCCCACAGC 2631 4151 GCACGUCA G CCAAGCCA 930 TGCCTTCG GGCTAGCTACAACGA CCACAGCT 2632 4157 CAGGGAAG G CAAGCCCA 931 TGCCTTCG GGCTAGCTACAACGA	4041	GACAGCAA A CCCAAGGC	906	GCCTTGGG GGCTAGCTACAACGA TTGCTGTC	2608
4060 CGCUCAAG A UUGACUUG 909 CAAGTCAA GGCTAGCTACAACGA CTTGACG 2611 4064 CAAGAUUG A CUUGAGAG 910 CTCTCAAG GGCTAGCAACGA CAATCTTG 2612 4072 ACUUGAGA G UAACCAGU 911 ACTGGTTA GGCTAGCAACGA TCTCAAGT 2613 4075 UGAGAGUA A CCAGUAAA 912 TTTACTGG GGCTAGCAACGA TACTCTCA 2614 4079 AGUAACCA G UAAAAGUA 913 TACTTTTA GGCTAGCAACGA TGCTTACT 2615 4085 CAGUAAAA G UAAGGAGU 914 ACTCCTTA GGCTAGCTACAACGA TGCTTACT 2616 4092 AGUAAGGA G UCGGGGCU 915 AGCCCCGA GGCTAGCTACAACGA TCCTTACT 2617 4098 GAGUCGGG G CUGUCUGA 916 TCAGACAG GGCTAGCTACAACGA TCCTACAT 2618 4101 UCGGGGCU G UCCGAUGU 917 ACATCAGA GGCTAGCTACAACGA AGCACAGC 2620 4108 UGUCUGA U GUCAGCA 918 TGCTGAGA GGCTAGCTACAACGA ATCAAGACA 26221 4112 UGABUGUCA G CAGGCCCA 920 TGGGCCTG GGCTAGCTACAACGA TGACATCA 2622 4112 CAGGCCCA G UUUCUGCC 922 GGCAGAAA GGCTAGCTACAACGA TGGCTACA 2623	4048	AACCCAAG G CCUCGCUC	907	GAGCGAGG GGCTAGCTACAACGA CTTGGGTT	2609
4064 CARGAUUG A CUUGAGAG 910 CTCTCAAG GGCTAGCTACAACGA CAATCTTG 2612 4072 ACUUGAGA G UAACCAGU 911 ACTGGTTA GGCTAGCTACAACGA TCTCAAGT 2613 4075 UGAGAGUA A CCAGUAAA 912 TTTACTGG GGCTAGCTACAACGA TACTCTCA 2614 4079 AGUAACCA G UAAAAGUA 913 TACTTTTA GGCTAGCTACAACGA TGGTTACT 2615 4085 CAGUAAAA G UAAGGAGU 914 ACTCCTTA GGCTAGCTACAACGA TGTTTACTG 2616 4092 AGUAAGGA G UCGGGGCU 915 AGCCCCGA GGCTAGCTACAACGA TCCTTACT 2617 4098 GAGUCGGG G CUGUCUGA 916 TCAGACAG GGCTAGCTACAACGA TCCTTACT 2618 4101 UCGGGGCU G UCUGAUGU 917 ACATCAGA GGCTAGCTACAACGA CCCGACTC 2618 4106 GCUGUCUG A UGUCAGCA 918 TGCTGACA GGCTAGCTACAACGA AGCCCCGA 2619 4108 UGUCUGAU G UCAGCAGG 919 CCTGCTGA GGCTAGCTACAACGA AGCCCCGA 2620 4112 UGAUGUCA G CAGGCCCA 920 TGGGCCTG GGCTAGCTACAACGA ATCAGACA 2621 4112 UGAUGUCA G CAGGCCCA 920 TGGGCCTG GGCTAGCTACAACGA TGACATCA 2622 4116 GUCAGCAG G CCCAGUUU 921 AAACTGGG GGCTAGCTACAACGA TGGCCTG 2624 4121 CAGGCCCA G UUUCUGCC 922 GGCAGAAA GGCTAGCTACAACGA TGGCCTG 2624 4127 CAGUUUCU G CCAUUCCA 923 TGGAATGG GGCTAGCTACAACGA TGGCCTG 2624 4127 CAGUUUCU G CCAUUCCA 923 TGGAATGG GGCTAGCTACAACGA AGAAACTG 2625 4130 UUUCUGCC A UUCCAGCU 924 AGCTGGAA GGCTAGCTACAACGA TGGACTG 2625 4130 UUUCUGCC A UUCCAGCU 924 AGCTGGAA GGCTAGCTACAACGA TGGAATGG 2625 4131 UUUCCAGCU G UGGGCACG 926 CGTGCCCA GGCTAGCTACAACGA AGCAGCT 2629 4143 AGCUGUGG G CACGUCAG 927 CTGACGTG GGCTAGCTACAACGA AGCTGGAA 2628 4143 AGCUGUGG G CACGUCAG 927 CTGACGTG GGCTAGCTACAACGA AGCTGGAA 2628 4143 AGCUGUGG G CACGUCAG 927 CTGACGTG GGCTAGCTACAACGA CCACAGCT 2629 4145 CUGUGGGC A CGUCAGCG 928 CGTGACCTAGCTACAACGA GCCCCACG 2630 4147 GUGGGCAC G UCAGCGAA 929 TTCGCTGA GGCTAGCTACAACGA GGCCCACAG 2630 4147 GUGGGCAC G UCAGCGAA 929 TTCGCTGA GGCTAGCTACAACGA GTGCCCAC 2631 4151 GCACGUCA G CGAAGGCA 930 TGCCTTCG GGCTAGCTACAACGA CTCCCACG 2632 4157 CAGCGAAG G CAAGCGCA 931 TGCCTTCG GGCTAGCTACAACGA CTCCCCTG 2632	4053	AAGGCCUC G CUCAAGAU	908	ATCTTGAG GGCTAGCTACAACGA GAGGCCTT	2610
4072 ACUUGAGA G UAACCAGU 911 ACTGGTTA GGCTAGCTACAACGA TCTCAAGT 2613 4075 UGAGAGUA A CCAGUAAA 912 TTTACTGG GGCTAGCTACAACGA TACTCTCA 2614 4079 AGUAACCA G UAAAAGUA 913 TACTTTTA GGCTAGCTACAACGA TGGTTACT 2615 4085 CAGUAAAA G UAAGGAGU 914 ACTCCTTA GGCTAGCTACAACGA TTTTACTG 2616 4092 AGUAAGGA G UCGGGGCU 915 AGCCCCGA GGCTAGCTACAACGA TCCTTACT 2617 4098 GAGUCGGG G CUGUCUGA 916 TCAGACAG GGCTAGCTACAACGA CCCGACTC 2618 4101 UCGGGGCU G UCUGAUGU 917 ACATCAGA GGCTAGCTACAACGA AGCCCCGA 2619 4106 GCUGUCUG A UGUCAGCA 918 TGCTGACA GGCTAGCTACAACGA AGCCCCGA 2620 4108 UGUCUGAU G UCAGCAGG 919 CCTGCTGA GGCTAGCTACAACGA ATCAGACA 2621 4112 UGAUGUCA G CAGGCCCA 920 TGGGCCTG GGCTAGCTACAACGA ATCAGACA 2622 4116 GUCAGCAG G CCCAGUUU 921 AAACTGGG GGCTAGCTACAACGA TGACATCA 2622 4121 CAGGCCCA G UUUCUGCC 922 GGCAGAAA GGCTAGCTACAACGA TGGGCCTG 2624 4127 CAGUUUCU G CCAUUCCA 923 TGGAATGG GGCTAGCTACAACGA TGGGCCTG 2624 4127 CAGUUUCU G CCAUUCCA 923 TGGAATGG GGCTAGCTACAACGA AGAAACTG 2625 4130 UUUCUGCC A UUCCAGCU 924 AGCTGGAA GGCTAGCTACAACGA TGGAACGG 2625 4130 UUUCUGCC A UUCCAGCU 924 AGCTGGAA GGCTAGCTACAACGA TGGAATGG 2625 4131 UUCCAGCU G UGGGCACG 925 GCCCACAG GGCTAGCTACAACGA TGGAATGG 2627 4139 UUCCAGCU G UGGGCACG 926 CGTGCCCA GGCTAGCTACAACGA AGCTGGAA 2628 4143 AGCUGGG G CACGUCAG 927 CTGACGTG GGCTAGCTACAACGA AGCTGGAA 2628 4143 AGCUGGGC A CGUCAGCG 928 CGCTGCCCA GGCTAGCTACAACGA AGCTGGAA 2628 4143 AGCUGGGC A CGUCAGCG 928 CGCTGCCCA GGCTAGCTACAACGA AGCTGGAA 2628 4143 AGCUGGGC A CGUCAGCG 928 CGCTGCCCA GGCTAGCTACAACGA CCCACAGCT 2629 4145 CUGUGGGC C UCAGCGAA 929 TCGCTGA GGCTAGCTACAACGA GCCCACAC 2631 4147 GUGGGCAC G UCAGCGAA 929 TCGCTGA GGCTAGCTACAACGA GCCCACAC 2631 4151 GCACGUCA G CAAAGCCA 930 TGCCTTCG GGCTAGCTACAACGA CCCACACC 2631 4157 CAGCGAAG G CAAAGCCA 931 TGCCTTCG GGCTAGCTACAACGA CTCCCCC 2632 4157 CAGCGAAG G CAAAGCCA 931 TGCCTTCG GGCTAGCTACAACGA CTCCCCC 2632	4060	CGCUCAAG A UUGACUUG	909	CAAGTCAA GGCTAGCTACAACGA CTTGAGCG	2611
4075 UGAGAGUA A CCAGUARA 912 TTTACTGG GGCTAGCTACAACGA TACTCTCA 2614 4079 AGUAACCA G UAAAAGUA 913 TACTTTTA GGCTAGCTACAACGA TGGTTACT 2615 4085 CAGUAAAA G UAAGGAGU 914 ACTCCTTA GGCTAGCTACAACGA TGTTTACTG 2616 4092 AGUAAGGA G UCGGGGCU 915 AGCCCCGA GGCTAGCTACAACGA TCCTTACT 2617 4098 GAGUCGGG G CUGUCUGA 916 TCAGACAG GGCTAGCTACAACGA CCCGACTC 2618 4101 UCGGGGCU G UCUGAUGU 917 ACATCAGA GGCTAGCTACAACGA AGCCCCGA 2619 4106 GCUGUCUG A UGUCAGCA 918 TGCTGACA GGCTAGCTACAACGA AGCCCCGA 2620 4108 UGUCUGAU G UCAGCAGG 919 CCTGCTGA GGCTAGCTACAACGA ATCAGACA 2621 4112 UGAUGUCA G CAGGCCCA 920 TGGGCTG GGCTAGCTACAACGA ATCAGACA 2621 4116 GUCAGCAG G CCCAGUUU 921 AAACTGGG GGCTAGCTACAACGA TGACATCA 2622 4116 GUCAGCAG G CCCAGUUU 921 AAACTGGG GGCTAGCTACAACGA TGGGCCTG 2624 4127 CAGUUCU G CCAUUCCA 922 GGCAGAAA GGCTAGCTACAACGA TGGGCCTG 2624 4127 CAGUUCU G CCAUUCCA 923 TGGAATGG GGCTAGCTACAACGA AGAAACTG 2625 4130 UUUCUGCC A UUCCAGCU 924 AGCTGGAA GGCTAGCTACAACGA GGCAGAAA 2626 4136 CCAUUCCA G CUGUGGC 925 GCCCACAG GGCTAGCTACAACGA TGGAAACTG 2625 4139 UUCCAGCU G UGGGCACG 926 CGTGCCCA GGCTAGCTACAACGA AGAAACTG 2626 4136 CCAUUCCA G CUGUGGC 926 CGTGCCCA GGCTAGCTACAACGA TGGAATGG 2627 4139 UUCCAGCU G UGGGCACG 926 CGTGCCCA GGCTAGCTACAACGA AGCTGGAA 2626 4136 CCAUUCCA G CUGUGGC 926 CGTGCCCA GGCTAGCTACAACGA AGCTGGAA 2628 4143 AGCUGUGG G CACGUCAG 927 CTGACGT GGCTAGCTACAACGA AGCTGGAA 2628 4144 AGCUGUGG G CACGUCAG 927 CTGACGT GGCTAGCTACAACGA CCACAGCT 2629 4145 CUGUGGGC A CGUCAGCG 928 CGCTGACG GGCTAGCTACAACGA CCACAGCT 2629 4147 GUGGGCAC G UCAGCGAA 929 TTCGCTGA GGCTAGCTACAACGA GCCCACAG 2631 4151 GCACGUCA G CGAAGGCA 930 TGCCTTCG GGCTAGCTACAACGA CTCCCCC 2631 4157 CAGCGAAG G CAAGCGCA 931 TGCCTTCG GGCTAGCTACAACGA CTCCCCC 2632 4157 CAGCGAAG G CAAGCGCA 931 TGCCTTCG GGCTAGCTACAACGA CTCCCCC 2632	4064	CAAGAUUG A CUUGAGAG	910	CTCTCAAG GGCTAGCTACAACGA CAATCTTG	2612
4079 AGUAACCA G UAAAAGUA 913 TACTTTTA GGCTAGCTACAACGA TGGTTACT 2615 4085 CAGUAAAA G UAAGGAGU 914 ACTCCTTA GGCTAGCTACAACGA TTTTACTG 2616 4092 AGUAAGGA G UCGGGGCU 915 AGCCCCGA GGCTAGCTACAACGA TCCTTACT 2617 4098 GAGUCGGG G CUGUCUGA 916 TCAGACAG GGCTAGCTACAACGA CCCGACTC 2618 4101 UCGGGGCU G UCUGAUGU 917 ACATCAGA GGCTAGCTACAACGA AGCCCCGA 2619 4106 GCUGUCUG A UGUCAGCA 918 TGCTGACA GGCTAGCTACAACGA AGCCCCGA 2620 4108 UGUCUGAU G UCAGCAGG 919 CCTGCTGA GGCTAGCTACAACGA ATCAGACA 2621 4112 UGARGUCA G CAGGCCCA 920 TGGGCCTG GGCTAGCTACAACGA ATCAGACA 2621 4116 GUCAGCAG G CCCAGUUU 921 AAACTGGG GGCTAGCTACAACGA TGACATCA 2622 4116 GUCAGCAG G CCCAGUUU 921 AAACTGGG GGCTAGCTACAACGA TGGGCTGA 2623 4121 CAGGCCCA G UUUCUGCC 922 GGCAGAAA GGCTAGCTACAACGA TGGGCTG 2624 4127 CAGUUUCU G CCAUUCCA 923 TGGAATGG GGCTAGCTACAACGA AGAAACTG 2625 4130 UUUCUGCC A UUCCAGCU 924 AGCTGGAA GGCTAGCTACAACGA AGAAACTG 2625 4136 CCAUUCCA G CUGUGGC 925 GCCCACAG GGCTAGCTACAACGA TGGAACAG 2626 4136 CCAUUCCA G CUGUGGGC 926 CGTGCCCA GGCTAGCTACAACGA TGGAATAG 2627 4139 UUCCAGCU G UGGGCACG 926 CGTGCCCA GGCTAGCTACAACGA AGCTGGAA 2628 4143 AGCUGUGG G CACGUCAG 927 CTGACGT GGCTAGCTACAACGA AGCTGGAA 2628 4145 CUGUGGGC A CGUCAGCG 928 CGCTGACG GGCTAGCTACAACGA CCACAGCT 2629 4147 GUGGGCAC G UCAGCGAA 929 TCGCCTGA GGCTAGCTACAACGA GCCCACAG 2630 4147 GUGGGCAC G UCAGCGAA 929 TCGCCTGA GGCTAGCTACAACGA TGACGTCC 2631 4151 GCACGUCA G CGAAGGCA 931 TGCCTTCG GGCTAGCTACAACGA TGACGTCC 2632	4072	ACUUGAGA G UAACCAGU	911	ACTGGTTA GGCTAGCTACAACGA TCTCAAGT	2613
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4163	AGGCAAGC G CAGGUUCA	933	TGAACCTG GGCTAGCTACAACGA GCTTGCCT	2635
4167	AAGCGCAG G UUCACCUA	934	TAGGTGAA GGCTAGCTACAACGA CTGCGCTT	
4171	GCAGGUUC A CCUACGAC	935	GTCGTAGG GGCTAGCTACAACGA GAACCTGC	2637
4175	GUUCACCU A CGACCACG	936	CGTGGTCG GGCTAGCTACAACGA AGGTGAAC	2638
4178	CACCUACG A CCACGCUG	937	CAGCGTGG GGCTAGCTACAACGA CGTAGGTG	2639
4181	CUACGACC A CGCUGAGC	938	GCTCAGCG GGCTAGCTACAACGA GGTCGTAG	2640
4183	ACGACCAC G CUGAGCUG	939	CAGCTCAG GGCTAGCTACAACGA GTGGTCGT	2641
4188	CACGCUGA G CUGGAAAG	940	CTTTCCAG GGCTAGCTACAACGA TCAGCGTG	2642
4201	AAAGGAAA A UCGCGUGC	941	GCACGCGA GGCTAGCTACAACGA TTTCCTTT	2643
4204	GGAAAAUC G CGUGCUGC	942	GCAGCACG GGCTAGCTACAACGA GATTTTCC	2644
4206	AAAAUCGC G UGCUGCUC	943	GAGCAGCA GGCTAGCTACAACGA GCGATTTT	2645
4208	AAUCGCGU G CUGCUCCC	944	GGGAGCAG GGCTAGCTACAACGA ACGCGATT	2646
4211	CGCGUGCU G CUCCCCGC	945	GCGGGGAG GGCTAGCTACAACGA AGCACGCG	2647
4218	UGCUCCCC G CCCCCAGA	946	TCTGGGG GGCTAGCTACAACGA GGGGAGCA	2648
4226	GCCCCCAG A CUACAACU	947	AGTTGTAG GGCTAGCTACAACGA CTGGGGGC	2649
4229	CCCAGACU A CAACUCGG	948	CCGAGTTG GGCTAGCTACAACGA AGTCTGGG	2650
4232	AGACUACA A CUCGGUGG	949	CCACCGAG GGCTAGCTACAACGA TGTAGTCT	2651
4237	ACAACUCG G UGGUCCUG	950	CAGGACCA GGCTAGCTACAACGA CGAGTTGT	2652
4240	ACUCGGUG G UCCUGUAC	951	GTACAGGA GGCTAGCTACAACGA CACCGAGT	2653
4245	GUGGUCCU G UACUCCAC	952	GTGGAGTA GGCTAGCTACAACGA AGGACCAC	2654
4247	GGUCCUGU A CUCCACCC	953	GGGTGGAG GGCTAGCTACAACGA ACAGGACC	2655
4252	UGUACUCC A CCCCACCC	954	GGGTGGGG GGCTAGCTACAACGA GGAGTACA	2656
4257	UCCACCC A CCCAUCUA	955	TAGATGGG GGCTAGCTACAACGA GGGGTGGA	2657
4261	CCCCACCC A UCUAGAGU	956	ACTCTAGA GGCTAGCTACAACGA GGGTGGGG	2658
4268	CAUCUAGA G UUUGACAC	957	GTGTCAAA GGCTAGCTACAACGA TCTAGATG	2659
4273	AGAGUUUG A CACGAAGC	958	GCTTCGTG GGCTAGCTACAACGA CAAACTCT	2660
4275	AGUUUGAC A CGAAGCCU	959	AGGCTTCG GGCTAGCTACAACGA GTCAAACT	2661
4280	GACACGAA G CCUUAUUU	960	AAATAAGG GGCTAGCTACAACGA TTCGTGTC	2662
4285	GAAGCCUU A UUUCUAGA	961	TCTAGAAA GGCTAGCTACAACGA AAGGCTTC	2663
4295	UUCUAGAA G CACAUGUG	962	CACATGTG GGCTAGCTACAACGA TTCTAGAA	2664
4297	CUAGAAGC A CAUGUGUA	963	TACACATG GGCTAGCTACAACGA GCTTCTAG	2665
4299	AGAAGCAC A UGUGUAUU	964	AATACACA GGCTAGCTACAACGA GTGCTTCT	2666
4301	AAGCACAU G UGUAUUUA	965	TAAATACA GGCTAGCTACAACGA ATGTGCTT	2667
4303	GCACAUGU G UAUTUUAUA	966	TATAAATA GGCTAGCTACAACGA ACATGTGC	2668
4305	ACAUGUGU A UUUAUACC	967	GGTATAAA GGCTAGCTACAACGA ACACATGT	2669
4309	GUGUAUUU A UACCCCCA	968	TEGEGETA GECTACAACGA AAATACAC	2670
4311	GUAUUUAU A CCCCCAGG	969	CCTGGGGG GGCTAGCTACAACGA ATAAATAC	2671
4322	CCCAGGAA A CUAGCUUU	970	AAAGCTAG GGCTAGCTACAACGA TTCCTGGG	2672
4326	GGAAACUA G CUUUUGCC	971	GGCAAAAG GGCTAGCTACAACGA TAGTTTCC	2673
4332	UAGCUUUU G CCAGUAUU	972	AATACTGG GGCTAGCTACAACGA AAAAGCTA	2674
4336	UUUUGCCA G UAUUAUGC	973	GCATAATA GGCTAGCTACAACGA TGGCAAAA	2675
4338	UUGCCAGU A UUAUGCAU	974	ATGCATAA GGCTAGCTACAACGA ACTGGCAA	2676
4341	CCAGUAUU A UGCAUAUA	975	TATATGCA GGCTAGCTACAACGA AATACTGG	
4343	AGUAUUAU G CAUAUAUA	976	TATATATG GGCTAGCTACAACGA ATAATACT	
4345	UAUUAUGC A UAUAUAAG	977	CTTATATA GGCTAGCTACAACGA GCATAATA	2679
4347	UUAUGCAU A UAUAAGUU	978	AACTTATA GGCTAGCTACAACGA ATGCATAA	2680
4349	AUGCAUAU A UAAGUUUA	979	TAAACITA GGCTAGCTACAACGA ATATGCAT	2681
4353	AUAUAUAA G UUUACACC	980	GGTGTAAA GGCTAGCTACAACGA TTATATAT	2682
4357	AUAAGUUU A CACCUUUA	981	TAAAGGTG GGCTAGCTACAACGA AAACTTAT	2683
4359	AAGUUUAC A CCUUUAUC	982	GATAAAGG GGCTAGCTACAACGA GTAAACTT	2684
4365	ACACCUUU A UCUUUCCA	983	TGGAAAGA GGCTAGCTACAACGA AAAGGTGT	2685
4373	AUCUUUCC A UGGGAGCC	984	GGCTCCCA GGCTAGCTACAACGA GGAAAGAT	2686
			outside outside	2000

4250	66117667 6 667 667766	005	Total Composition and the composition of the compos	0605
4379	CCAUGGGA G CCAGCUGC	985	GCAGCTGG GGCTAGCTACAACGA TCCCATGG	2687
4383	GGGAGCCA G CUGCUUUU	986	AAAAGCAG GGCTAGCTACAACGA TGGCTCCC	2688
4386	AGCCAGCU G CUUUUUGU	987	ACAAAAAG GGCTAGCTACAACGA AGCTGGCT	2689
4393	UGCUUUUU G UGAUUUUU	988	AAAAATCA GGCTAGCTACAACGA AAAAAGCA	2690
4396	UUUUUGUG A UUUUUUUA	989	TAAAAAAA GGCTAGCTACAACGA CACAAAAA	2691
4405	UUUUUUUA A UAGUGCUU	990	AAGCACTA GGCTAGCTACAACGA TAAAAAAA	2692
4408	UUUUAAUA G UGCUUUUU	991	AAAAAGCA GGCTAGCTACAACGA TATTAAAA	2693
4410	UUAAUAGU G CUUUUUUU	992	AAAAAAAG GGCTAGCTACAACGA ACTATTAA	2694
4424	UUUUUUUG A CUAACAAG	993	CTTGTTAG GGCTAGCTACAACGA CAAAAAA	2695
4428	UUUGACUA A CAAGAAUG	994	CATTCTTG GGCTAGCTACAACGA TAGTCAAA	2696
4434	UAACAAGA A UGUAACUC	995	GAGTTACA GGCTAGCTACAACGA TCTTGTTA	2697
4436	ACAAGAAU G UAACUCCA	996	TGGAGTTA GGCTAGCTACAACGA ATTCTTGT	2698
4439	AGAAUGUA A CUCCAGAU	997	ATCTGGAG GGCTAGCTACAACGA TACATTCT	2699
4446	AACUCCAG A UAGAGAAA	998	TTTCTCTA GGCTAGCTACAACGA CTGGAGTT	2700
4454	AUAGAGAA A UAGUGACA	999	TGTCACTA GGCTAGCTACAACGA TTCTCTAT	2701
4457	GAGAAAUA G UGACAAGU	1000	ACTTGTCA GGCTAGCTACAACGA TATTTCTC	2702
4460	AAAUAGUG A CAAGUGAA	1001	TTCACTTG GGCTAGCTACAACGA CACTATTT	2703
4464	AGUGACAA G UGAAGAAC	1002	GTTCTTCA GGCTAGCTACAACGA TTGTCACT	2704
4471	AGUGAAGA A CACUACUG	1003	CAGTAGTG GGCTAGCTACAACGA TCTTCACT	2705
4473	UGAAGAAC A CUACUGCU	1004	AGCAGTAG GGCTAGCTACAACGA GTTCTTCA	2706
4476	AGAACACU A CUGCUAAA	1005	TTTAGCAG GGCTAGCTACAACGA AGTGTTCT	2707
4479	ACACUACU G CUAAAUCC	1006	GGATTTAG GGCTAGCTACAACGA AGTAGTGT	2708
4484	ACUGCUAA A UCCUCAUG	1007	CATGAGGA GGCTAGCTACAACGA TTAGCAGT	2709
4490	AAAUCCUC A UGUUACUC	1008	GAGTAACA GGCTAGCTACAACGA GAGGATTT	2710
4492	AUCCUCAU G UUACUCAG	1009	CTGAGTAA GGCTAGCTACAACGA ATGAGGAT	2711
4495	CUCAUGUU A CUCAGUGU	1010	ACACTGAG GGCTAGCTACAACGA AACATGAG	2712
4500	GUUACUCA G UGUUAGAG	1011	CTCTAACA GGCTAGCTACAACGA TGAGTAAC	2713
4502	UACUCAGU G UUAGAGAA	1012	TTCTCTAA GGCTAGCTACAACGA ACTGAGTA	2714
4511	UUAGAGAA A UCCUUCCU	1013	AGGAAGGA GGCTAGCTACAACGA TTCTCTAA	2715
4522	CUUCCUAA A CCCAAUGA	1014	TCATTGGG GGCTAGCTACAACGA TTAGGAAG	2716
4527	UAAACCCA A UGACUUCC	1015	GGAAGTCA GGCTAGCTACAACGA TGGGTTTA	2717
4530	ACCCAAUG A CUUCCCUG	1016	CAGGGAAG GGCTAGCTACAACGA CATTGGGT	2718
4538	ACUUCCCU G CUCCAACC	1017	GGTTGGAG GGCTAGCTACAACGA AGGGAAGT	2719
4544	CUGCUCCA A CCCCCGCC	1018	GGCGGGG GGCTAGCTACAACGA TGGAGCAG	2720
4550	CAACCCC G CCACCUCA	1019	TGAGGTGG GGCTAGCTACAACGA GGGGGTTG	2721
4553	CCCCCGCC A CCUCAGGG	1020	CCCTGAGG GGCTAGCTACAACGA GGCGGGGG	2722
4561	ACCUCAGG G CACGCAGG	1021	CCTGCGTG GGCTAGCTACAACGA CCTGAGGT	2723
4563	CUCAGGGC A CGCAGGAC	1022	GTCCTGCG GGCTAGCTACAACGA GCCCTGAG	2724
4565	CAGGGCAC G CAGGACCA	1023	TGGTCCTG GGCTAGCTACAACGA GTGCCCTG	2725
4570	CACGCAGG A CCAGUUUG	1024	CAAACTGG GGCTAGCTACAACGA CCTGCGTG	
4574	CAGGACCA G UUUGAUUG	1025	CAATCAAA GGCTAGCTACAACGA TGGTCCTG	
4579	CCAGUUUG A UUGAGGAG	1026	CTCCTCAA GGCTAGCTACAACGA CAAACTGG	
4587	AUUGAGGA G CUGCACUG	1027	CAGTGCAG GGCTAGCTACAACGA TCCTCAAT	2729
4590	GAGGAGCU G CACUGAUC	1028	GATCAGTG GGCTAGCTACAACGA AGCTCCTC	2730
4592	GGAGCUGC A CUGAUCAC	1029	GTGATCAG GGCTAGCTACAACGA GCAGCTCC	
4596	CUGCACUG A UCACCCAA	1030	TTGGGTGA GGCTAGCTACAACGA CAGTGCAG	
4599	CACUGAUC A CCCAAUGC	1031	GCATTGGG GGCTAGCTACAACGA GATCAGTG	
4604	AUCACCCA A UGCAUCAC	1032	GTGATGCA GGCTAGCTACAACGA TGGGTGAT	
4606	CACCCAAU G CAUCACGU	1033	ACGTGATG GGCTAGCTACAACGA ATTGGGTG	·
4608	CCCAAUGC A UCACGUAC	1034	GTACGTGA GGCTAGCTACAACGA GCATTGGG	
4611	AAUGCAUC A CGUACCCC	1035	GGGGTACG GGCTAGCTACAACGA GATGCATT	2737
4613	UGCAUCAC G UACCCCAC	1036	GTGGGGTA GGCTAGCTACAACGA GTGATGCA	2738

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4615	CAUCACGU A CCCCACUG	1037	CAGTGGGG GGCTAGCTACAACGA ACGTGATG 2739
4620	CGUACCCC A CUGGGCCA	1038	TGGCCCAG GGCTAGCTACAACGA GGGGTACG 2740
4625	CCCACUGG G CCAGCCCU	1039	AGGGCTGG GGCTAGCTACAACGA CCAGTGGG 2741
4629	CUGGGCCA G CCCUGCAG	1040	CTGCAGGG GGCTAGCTACAACGA TGGCCCAG 2742
4634	CCAGCCCU G CAGCCCAA	1041	TTGGGCTG GGCTAGCTACAACGA AGGGCTGG 2743
4637	GCCCUGCA G CCCAAAAC	1042	GTTTTGGG GGCTAGCTACAACGA TGCAGGGC 2744
4644	AGCCCAAA A CCCAGGGC	1043	GCCCTGGG GGCTAGCTACAACGA TTTGGGCT 2745
4651	AACCCAGG G CAACAAGC	1044	GCTTGTTG GGCTAGCTACAACGA CCTGGGTT 2746
4654	CCAGGGCA A CAAGCCCG	1045	CGGGCTTG GGCTAGCTACAACGA TGCCCTGG 2747
4658	GGCAACAA G CCCGUUAG	1046	CTAACGGG GGCTAGCTACAACGA TTGTTGCC 2748
4662	ACAAGCCC G UUAGCCCC	1047	GGGGCTAA GGCTAGCTACAACGA GGGCTTGT 2749
4666	GCCCGUUA G CCCCAGGG	1048	CCCTGGGG GGCTAGCTACAACGA TAACGGGC 2750
4676	CCCAGGGG A UCACUGGC	1049	GCCAGTGA GGCTAGCTACAACGA CCCCTGGG 2751
4679	AGGGGAUC A CUGGCUGG	1050	CCAGCCAG GGCTAGCTACAACGA GATCCCCT 2752
4683	GAUCACUG G CUGGCCUG	1051	CAGGCCAG GGCTAGCTACAACGA CAGTGATC 2753
4687	ACUGGCUG G CCUGAGCA	1052	TGCTCAGG GGCTAGCTACAACGA CAGCCAGT 2754
4693	UGGCCUGA G CAACAUCU	1053	AGATGTTG GGCTAGCTACAACGA TCAGGCCA 2755
4696	CCUGAGCA A CAUCUCGG	1054	CCGAGATG GGCTAGCTACAACGA TGCTCAGG 2756
4698	UGAGCAAC A UCUCGGGA	1055	TCCCGAGA GGCTAGCTACAACGA GTTGCTCA 2757
4707	UCUCGGGA G UCCUCUAG	1056	CTAGAGGA GGCTAGCTACAACGA TCCCGAGA 2758
4715	GUCCUCUA G CAGGCCUA	1057	TAGGCCTG GGCTAGCTACAACGA TAGAGGAC 2759
4719	UCUAGCAG G CCUAAGAC	1058	GTCTTAGG GGCTAGCTACAACGA CTGCTAGA 2760
4726	GGCCUAAG A CAUGUGAG	1059	CTCACATG GGCTAGCTACAACGA CTTAGGCC 2761
4728	CCUAAGAC A UGUGAGGA	1060	TCCTCACA GGCTAGCTACAACGA GTCTTAGG 2762
4730	UAAGACAU G UGAGGAGG	1061	CCTCCTCA GGCTAGCTACAACGA ATGTCTTA 2763
4752	GAAAAAA G CAAAAAGC	1062	GCTTTTTG GGCTAGCTACAACGA TTTTTTTC 2764
4759	AGCAAAAA G CAAGGGAG	1063	CTCCCTTG GGCTAGCTACAACGA TTTTTGCT 2765
4777	AAAGAGAA A CCGGGAGA	1064	TCTCCCGG GGCTAGCTACAACGA TTCTCTTT 2766
4788	GGGAGAAG G CAUGAGAA	1065	TTCTCATG GGCTAGCTACAACGA CTTCTCCC 2767
4790	GAGAAGGC A UGAGAAAG	1066	CTTTCTCA GGCTAGCTACAACGA GCCTTCTC 2768
4800	GAGAAAGA A UUUGAGAC	1067	GTCTCAAA GGCTAGCTACAACGA TCTTTCTC 2769
4807	AAUUUGAG A CGCACCAU	1068	ATGGTGCG GGCTAGCTACAACGA CTCAAATT 2770
4809	UUUGAGAC G CACCAUGU	1069	ACATGGTG GGCTAGCTACAACGA GTCTCAAA 2771
4811	UGAGACGC A CCAUGUGG	1070	CCACATGG GGCTAGCTACAACGA GCGTCTCA 2772
4814	GACGCACC A UGUGGGCA	1071	TGCCCACA GGCTAGCTACAACGA GGTGCGTC 2773
4816	CGCACCAU G UGGGCACG	1072	CGTGCCCA GGCTAGCTACAACGA ATGGTGCG 2774
4820	CCAUGUGG G CACGGAGG	1073	CCTCCGTG GGCTAGCTACAACGA CCACATGG 2775
4822	AUGUGGGC A CGGAGGGG	1074	CCCCTCCG GGCTAGCTACAACGA GCCCACAT 2776
4832	GGAGGGG A CGGGGCUC	1075	GAGCCCCG GGCTAGCTACAACGA CCCCCTCC 2777
4837	GGGACGGG G CUCAGCAA	1076	TTGCTGAG GGCTAGCTACAACGA CCCGTCCC 2778
4842	GGGGCUCA G CAAUGCCA	1077	TGGCATTG GGCTAGCTACAACGA TGAGCCCC 2779
4845	GCUCAGCA A UGCCAUUU	1078	AAATGGCA GGCTAGCTACAACGA TGCTGAGC 2780
4847	UCAGCAAU G CCAUUUCA	1079	TGAAATGG GGCTAGCTACAACGA ATTGCTGA 2781
4850	GCAAUGCC A UUUCAGUG	1080	CACTGAAA GGCTAGCTACAACGA GGCATTGC 2782
4856	CCAUUUCA G UGGCUUCC	1081	GGAAGCCA GGCTAGCTACAACGA TGAAATGG 2783
4859	UUUCAGUG G CUUCCCAG	1082	CTGGGAAG GGCTAGCTACAACGA CACTGAAA 2784
4867	GCUUCCCA G CUCUGACC	1083	GGTCAGAG GGCTAGCTACAACGA TGGGAAGC 2785
4873	CAGCUCUG A CCCUUCUA	1084	TAGAAGGG GGCTAGCTACAACGA CAGAGCTG 2786
4881	ACCCUUCU A CAUUUGAG	1085	CTCAAATG GGCTAGCTACAACGA AGAAGGGT 2787
4883	CCUUCUAC A UUUGAGGG	1086	CCCTCAAA GGCTAGCTACAACGA GTAGAAGG 2788
4891	AUUUGAGG G CCCAGCCA	1087	TGGCTGGG GGCTAGCTACAACGA CCTCAAAT 2789
4896	AGGCCCA G CCAGGAGC	1088	GCTCCTGG GGCTAGCTACAACGA TGGGCCCT 2790
			2/30

1907 AGGARGA & CAGAURGA 1089 TOCATCTG GGCTAGCTACAACGA TCCTGGCT 2791 1907 AGGARGA & UGGACAGC 1091 CATCGCTG GGCTAGCTACAACGA CTCCCCTC 2792 1911 GARGARGA & CARCGAURG 1091 CATCGCTG GGCTAGCTACAACGA CTCTCCCTC 2793 1911 GARGARGA & CARCGAURG 1092 TCCCCTCA GGCTAGCTACAACGA TGTCCCATC 2794 1911 GARGARGA & CARUGAGGG 1092 TCCCCTCA GGCTAGCTACAACGA TGTCCCATC 2796 1917 GARGAGGG A UUUUCUG 1094 AGAAAATG GGCTAGCTACAACGA GTCCCCTCA 2796 1927 GARGAGGGA A UUUUCUGGA 1095 TCCCCAGAA GGCTAGCTACAACGA GTCCCCTC 2797 1936 1010					
1931 GCAGALIGO A CAGCORUS 1091 CATCGCTG GGCTAGCTACAACGA CCATCTCC 2793 1931 GAUGAGCA G CADUGAGGA 1092 CCTCATCG GGCTAGCTACAACGA TOTCCATC 2794 1931 GAGCAGCA A UGUICUCU 1094 AGAAAATG GGCTAGCTACAACGA CCCCTCAT 2795 1932 AUGAGGGA A CAUUUUCU 1094 AGAAAATG GGCTAGCTACAACGA CCCCTCAT 2796 1935 CCCGAAAA GGCTAGCTACAACGA CCCCTCAT 2796 1936 UUUUCUGGA	4903	AGCCAGGA G CAGAUGGA	1089	TCCATCTG GGCTAGCTACAACGA TCCTGGCT	2791
4914 GRUGGRCA G CGAUGAGG 4917 GRACAGCC A UGAGGGGA 4917 GRACAGCC A UGAGGGGA 4917 GRACAGCC A UGAGGGGA 4927 GRACAGCC A UUUUCUUGG 4928 AUGAGGGA CAUUUCUU 49427 GRAGGGGA CAUUUCUU 49427 GRAGGGGA CAUUUCUU 49427 GRAGGGGA CAUUUCUU 49427 GRAGGGAC A UUUUCUGG 4956 UUUUCUGG A UUUUCUGG 4956 UUUUCUGG A UUUUCUGG 4956 UUUUCUGGA CAAAAAA 4957 AGAAAAA 4946 UUUUCUGGA CAAAAAA 4947 CAAAAAAA 4946 CUGAGGAGA CAAAAAAA 4947 CAAAAAAA 4947 AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	4907	AGGAGCAG A UGGACAGC	1090	GCTGTCCA GGCTAGCTACAACGA CTGCTCCT	2792
4917 GGACAGCG A UGAGGGGA 1093 TCCCCTCA GGCTAGCTACAACGA CGCTOTCC 2795 4928 AUGAGGGG A CAUUUCU 1094 AGAAATG GGCTAGCTACAACGA CCCCTCAT 2796 4927 GAGGGGAC A UUUUCUGG 1095 CCAGAAAA GGCTAGCTACAACGA CCCCCTCAT 2796 4936 UUUUCUGG A UUCUGGGA 1096 TCCCAGAAA GGCTAGCTACAACGA CTCCCCTC 2797 4936 UUUUCUGG A UUCUGGGA 1096 TCCCAGAAA GGCTAGCTACAACGA CTCCCAGAAAA 2798 4946 UCUGGGAG CAACAAAA 1097 TTTTCTTG GGCTACCTACAACGA CTCCCAGA 2799 4957 AGAAAAGG A CAAAAMUUC 1098 GAAATTTTG GGCTAGCTACAACGA CTCCCTTTT 2800 4951 AAGGACAA A UAUCUUUUU 1099 AAAAGATA GGCTAGCTACAACGA TTGTCCTT 2801 4953 GGACAAAA UUUUGAGA 1101 TGCTTTTG GGCTAGCTACAACGA TTGTCCT 2801 4953 GGACAAAA UUUUGAGA 1101 TGCTTTTG GGCTAGCTACAACGA TTTGTCC 2802 4951 GAACUAAA G CAAAUUUU 1102 AAAATTTG GGCTAGCTACAACGA TTTGTCC 2802 4952 AAUUUGAGA CUUUGACC 1104 GGTAAAGCA ACTTAGATTC 2804 4953 UAAAGCAA A UUUUGACA 1105 TCCATTAG GGCTAGCTACAACGA TTTAGTTC 2804 4954 AAAAUUGAG A CCUUUGACC 1104 GGTAAAGA GGCTAGCTACAACGA TTTAGTTC 2805 4959 AAAACCUU A CCUAUGAA 1105 TCCATTAG GGCTAGCTACAACGA TTTAGTTT 2805 5002 CUUUGACCU A UGGAAGUU 1106 CACTTCCC GGCTAGCTACAACGA AAAGGTAT 2805 5008 CUAUGAGA G UUGUUGAC 1106 CACTTCCC GGCTAGCTACAACGA AAAGGTAT 2805 5016 GUGGUUCU A UGUCAAUUU 1109 AAAAGAA GGCTAGCTACAACGA AAAGGTAT 2805 5011 UUGAAAGUG G UUCUAUGU 1106 CACTTCCC GGCTAGCTACAACGA AAAGGTAT 2805 5016 GUGGUUCU A UGUCCAUU 1109 AAAAGAA GGCTAGCTACAACGA AAAGGTAT 2805 5016 GUGGUUCU A UGUCCAUU 1109 AAAAGAA GGCTAGCTACAACGA AAAGGTAT 2805 5017 UUUGAAGUG G UUCUAUGU 1109 AAAAGAACAC 2611 5018 GGUUCUAU UUCUGAUU 1110 AAAAAGAA GGCTAGCTACAACGA AAAGAACAC 2811 5022 CUAUGUCA UUCUGAUU 1110 AAAAAGAA GGCTAGCTACAACGA AAAGAACAC 2811 5032 CUCUCAUU G UUCUAUGU 1110 AAAAAGAA GGCTAGCTACAACGA AAAGAACAC 2811 5032 CUCUCAUU G UUCUAUGU 1111 AAAAAAAAAAAAAAAAAAAAAAAAAAAAA	4911	GCAGAUGG A CAGCGAUG	1091	CATCGCTG GGCTAGCTACAACGA CCATCTGC	2793
### ### ### ### ### ### ### ### ### ##	4914	GAUGGACA G CGAUGAGG	1092	CCTCATCG GGCTAGCTACAACGA TGTCCATC	2794
927 GRIGGGRAC A UUUUCUGG 1095 CCAGAANA GGCTAGCTACAACGA GTCCCCCC 2797 4936 UUUUCUGG A UUUUGUGG 1096 TCCCAGAA GGCTAGCTACAACGA CCAGAANA 2798 4946 UCUGGGAG G CAAGANAN 1097 TTTCTTG GGCTAGCTACAACGA CCAGAANA 2799 4957 AGAANAGG A CAAAUMUU 1099 GAAAGATA GGCTAGCTACAACGA CTCCCAGA 2799 4951 AAGAANAG A CAAAUMUU 1099 AAAAAAGA GGCTAGCTACAACGA CTCCTCAGA 2799 4963 GGACAAAU A UCUUUUUU 1099 AAAAAAGA GGCTAGCTACAACGA TTTTCCTT 2801 4963 GGACAAAU A UCUUUUUU 1100 AAAAAAGA GGCTAGCTACAACGA TTTTGTCC 2802 4975 UUUUUGGA A CUAAAGCA 1101 TCCTTTAG GGCTAGCTACAACGA TTTTGTCC 2802 4978 UUUUUGGA A CUAAAGCA 1101 TCCTTTAG GGCTAGCTACAACGA TTTTGTCC 2802 4981 GAACURAA G CAAAUUUU 1102 AAAATTTG GGCTAGCTACAACGA TTTGTTC 2804 4982 UAAAGCAA UUUUGGAC 1104 GGTAAAGG GGCTAGCTACAACGA TTTGTTC 2805 4999 AGACCUUU A CCUUUACC 1104 GGTAAAGG GGCTAGCTACAACGA TTTGTTC 2805 5008 CUAUGGAA C UUGUACGU 1105 TCCATAGG GGCTAGCTACAACGA TTTCCTTTA 2805 5008 CUAUGGAA G UUGUAGGU 1107 TAGAACCA GGCTAGCTACAACGA TTCCATTAG 2809 5011 UGGAAGUG G UUCUAUGU 1107 TAGAACCA GGCTAGCTACAACGA TTCCATTAG 2809 5011 UGGAAGUG G UUCUAUGU 1109 AATGGAC GGCTAGCTACAACGA TTCCATTAG 2809 5011 UGGAAGUG G UUCUAUGU 1109 AATGGAC GGCTAGCTACAACGA TTCCATTAG 2809 5012 CUUUGCC A UUCUCAUU 1110 AATGGAA GGCTAGCTACAACGA TAGAACCA 2811 5018 GGUUCUUA GUCCAUUU 1111 AATGGAA GGCTAGCTACAACGA AGAACCA 2812 5022 CUAUGUCC A UUCUCAUU 1111 AATGGAA GGCTAGCTACAACGA AGAACCA 2812 5022 CUUUGUCC A UUCUCAUU 1111 AATGGAA GGCTAGCTACAACGA AGAACCA 2813 5035 CAUUCGUG G CAUGUUUU 1114 AAAACATG GGCTAGCTACAACGA AGAACCA 2813 5036 CAUUCAUU G UUCUAUUU 1114 AAAACATG GGCTAGCTACAACGA AGAACCA 2815 5037 UUCGUGGC A UUCUCAUU 1114 AAAACATG GGCTAGCTACAACGA AGAACCA 2816 5039 CGUCCAUUC A UUGGAGUG 1113 ACTGCCA GGCTAGCTACAACGA AGAACCA 2816 5039 CGUCCAUUC A UUGUAGAU 1116 AATGACA GGCTAGCTACAACGA AGAACCA 2816 5039 CGUCCAUUC A UUGUAGU 1111 AATGACAA GGCTAGCTACAACGA AGAACCA 2816 5039 CGUCCAUC A UUCUCAUU 1114 AAAACATG GGCTAGCTACAACGA AGAACAT 2819 5045 AUGUUUGA A UUUGAGU 1116 ACACTACA GGCTAGCTACAACGA AAAACAT 2819 5045 AUGUUUGA A UUUGAGU 1116 ACACTACA GGCTAGCTACAACGA ATAGCAA 2819	4917	GGACAGCG A UGAGGGGA	1093	TCCCCTCA GGCTAGCTACAACGA CGCTGTCC	2795
4936 UUUUCUGG A UUCUGGGA 1096 TCCCAGAA GGCTAGCTACAACGA CCAGAAAA 2798 4946 UCUGGGAG G CAAGAAAA 1097 TTTTCTTG GGCTAGCTACAACGA CTCCCAGA 2799 4957 AGAAAAGG A CAADUAUC 1098 GATAGTTAGCTACAACGA CTCCCAGA 2799 4961 AAGGACAA A UAUCUUUUU 1099 AAAAGATA GGCTAGCTACAACGA CTTCTCT 2801 4961 AAGGACAA A UAUCUUUUU 1099 AAAAGATA GGCTAGCTACAACGA TTGTCCTT 2801 4953 GGACAAAU A UCUUUUUU 1100 AAAAAGA GGCTAGCTACAACGA ATTGTCCT 2802 4975 UUUUUGGA A CUAAAGCA 1101 TGCTTTAG GGCTAGCTACAACGA TTGTCCTT 2804 4981 GAACUAAA G CAAAUUU 1102 AAAATTG GGCTAGCTACAACGA TTCATTTA 2804 4982 AAUUUUAGA A CUUUAACC 1104 GGTAAAG GGCTAGCTACAACGA TTAGTTC 2804 4983 UAAAGCAA A UUUUAGAC 1104 GGTAAAAG GGCTAGCTACAACGA TTAGTTTA 2805 4992 AAUUUUAG A CCUUUACC 1104 GGTAAAAG GGCTAGCTACAACGA CTAAAATT 2806 4998 AGACCUUU A CCUAAGGA 1105 TCCATAGG GGCTAGCTACAACGA CTAAAATT 2806 5008 CUUUACCU A UGGAAGUU 1106 CACTTCCA GGCTAGCTACAACGA AAAGGTCT 2807 5011 UGGAAGUG U UGUUCUA 1107 TAGAACCA GGCTAGCTACAACGA AGAGGTCT 2809 5011 UGGAAGUG U UCUUAUGU 1108 ACATAGAA GGCTAGCTACAACGA TTCCCTTA 2809 5011 UGGAAGUG U UCUUAUGU 1110 AGAATGGA GGCTAGCTACAACGA CACTTCCA 2810 5018 GGUUCUAU G UCCAUUU 1110 AGAATGGA GGCTAGCTACAACGA AGAGTCC 2811 5022 CUAUGUCC A UUCGUUGU 1110 AGAATGGA GGCTAGCTACAACGA ATAGAACCA 2812 5022 CUAUGUCC A UUCGUUGU 1111 AGAATGGA GGCTAGCTACAACGA AGAAGACCA 2813 5032 UCUCABUC G UGGCAUGU 1111 AAAACATG GGCTAGCTACAACGA AGAAGAACGA 2815 5032 UUUCGUUG G UGGCAUGU 1111 AAAACATG GGCTAGCTACAACGA GAAAACCA 2815 5032 UUUCGUUG G UGGCAUGU 1111 AAAACATG GGCTAGCTACAACGA GAAAACCA 2816 5032 UUUCGUUG G UGGCAUGU 1111 AAAACATG GGCTAGCTACAACGA AAAACCA 2816 5032 UUUCGUUG G UGGCAUGU 1111 AAAACATG GGCTAGCTACAACGA AAAACCA 2816 5032 UUUCGUUG G UAGCAUGU 1111 AAAACATG GGCTAGCTACAACGA AAAACCA 2816 5032 UUUCGUUG G UAGCAUGU 1111 AAAACATG GGCTAGCTACAACGA AAAACCA 2816 5032 UUUCGUUG G CAUGUUGA 1115 CACAAAAG GGCTAGCTACAACGA AAAACCA 2816 5035 CAUUCGU G UAGCAUG UTAAAAGA GGCTAGCTACAACGA AAAACCA 2816 5036 AUGUUUG G CAUGAGGG 1117 CACAAGG GGCTAGCTACAACGA ATGCCAC 2818 5045 AUGUUUG G CAUGAGGG 1112 GACCACGA GGCTAGCTACAACGA ATGCCAC 2818 50	4925	AUGAGGGG A CAUUUUCU	1094	AGAAAATG GGCTAGCTACAACGA CCCCTCAT	2796
9946 UCUGGGAG G CAAGARAA 1097 TTTTCTTG GGCTAGCTACAACGA CTCCCAGA 2799 4957 AGAAAAGG A CAADUBUU 1098 GATATTTG GGCTAGCTACAACGA CTCCCAGA 2799 4961 AAGGACAA A URUCUUUU 1099 AAAAGATA GGCTAGCTACAACGA TTGTCCTT 2801 4963 GGACAABU A UCUUUUUU 1100 AAAAGATA GGCTAGCTACAACGA TTGTCCTT 2801 4963 GGACAABU A UCUUUUUU 1100 AAAAATA GGCTAGCTACAACGA TTGTCCTT 2801 4963 GGACAABU A UCUUUUGAC 1101 TSCTTTAG GGCTAGCTACAACGA TTTGTCCT 2802 4975 UUUUGGAA C CUAAAGCA 1101 TSCTTTAG GGCTAGCTACAACGA TTTAGTTC 2804 4981 DAAAGCAA A UUUUAGAC 1103 GTCTAAAA GGCTAGCTACAACGA TTGCTTT 2805 4992 AAUUUUAG A CCUUUACC 1104 GGTAAAG GGCTAGCTACAACGA TTAGTTC 2804 4998 DAGACCUUU A CCUAUGGA 1105 TCCATAGG GGCTAGCTACAACGA TTGCTTTA 2805 5002 CUUUACCU A UGGAAGUU 1106 CACTTCCA GGCTAGCTACAACGA AAAGGTCT 2807 5008 CUAUGGAA G UGGUUUUA 1107 TAGAACCA GGCTAGCTACAACGA AAAGGTCT 2807 5011 UGGAAGGG G UUCUAUGU 1107 TAGAACCA GGCTAGCTACAACGA AAAGGTCT 2810 5016 GGGUUUUA UGUCCAU 1109 AACATGAA GGCTAGCTACAACGA ACAGGA CACTTCCA 2810 5016 GGGUUUUA GUCCAUUU 1109 AACATGAA GGCTAGCTACAACGA ACAGGA CACTTCCA 2810 5018 GGUUUUAU G UCCAUUCU 1110 AGAATGG GGCTAGCTACAACGA CACTTCCA 2810 5018 GGUUUUAU G UCCAUUCU 1110 AGAATGG GGCTAGCTACAACGA AAAGGTCA 2811 5028 CCAUUCUC A UUCUCAUU 1111 AATGAGAA GGCTAGCTACAACGA GAAACGC 2811 5032 UUCUADUC G UGCCAUUU 1111 AATGAGAA GGCTAGCTACAACGA GAAACGC 2815 5037 UUCUADUC G UGCCAUUU 1111 AAAACATG GGCTAGCTACAACGA GAAACGA 2815 5039 CUUCADUC G UGCCAUUU 1114 AAAACATG GGCTAGCTACAACGA GAAACAC 2815 5031 UUCUADUC G UGCCAUUU 1116 AAAACATG GGCTAGCTACAACGA GAAACAC 2815 5032 UUUGUADU G UGCCAUUU 1111 AAAACATG GGCTAGCTACAACGA CACGAATG 2816 5033 UUUGUAGC A UUUUGAUU 1114 AAAACATG GGCTAGCTACAACGA CACGAATG 2816 5034 UUUGUAGU G UUUUGAUU 1116 AAACATG GGCTAGCTACAACGA CACGAATG 2816 5035 CAUUCUUG A UUUUGAUU 1116 AAACATG GGCTAGCTACAACGA CACGAATG 2816 5036 UUGUAGUU G UAGCACUG 1113 ACATGCCA GGCTAGCTACAACGA ATACCAA 2817 5039 CUUGAGUU G UAGCACUG 1110 ACACTGG GGCTAGCTACAACGA CACAAACAT 2819 5049 UUUGAGUU G UAGCACUG 1116 CAGTGGT GGCTAGCTACAACGA CACAAACAT 2819 5052 GAUUUUGA C UUUUGAUU 1116 AAACATG GGCTAGCTAC	4927	GAGGGGAC A UUUUCUGG	1095	CCAGAAAA GGCTAGCTACAACGA GTCCCCTC	2797
4957 AGARAAGG A CARAUBUC 1098 GATATTO GGCTAGCTACACGA CCTTTCT 2800 4961 AAGGACAA A URUCUUUU 1099 AAAAGATA GGCTAGCTACAACGA TITTCCTT 2801 4963 GGACAAAU A UCUUUUUU 1100 AAAAAAGA GGCTAGCTACAACGA ATTTCCTT 2801 4975 UUUUUGGA A CUAAAGCA 1101 TSCTTTAG GGCTAGCTACAACGA ATTTGTCC 2802 4975 UUUUUGGA A CUAAAGCA 1101 TSCTTTAG GGCTAGCTACAACGA TTTGTTC 2804 4981 GAACUAA A UUUUAGAC 1103 AAAAATTG GGCTAGCTACAACGA TTTGTTC 2804 4982 AAAUUUUAG A CCUUUUACC 1104 GGTAAAAG GGCTAGCTACAACGA TTTGTTT 2806 4998 AGACCUUU A CCUAUGGA 1105 TCCATAGG GGCTAGCTACAACGA TTTGTTT 2806 4998 AGACCUUU A CCUAUGGA 1105 TCCATAGG GGCTAGCTACAACGA TTGCTTTA 2805 5008 CUAUGGA G UGGUUCAA 1107 TGAAACCA GGCTAGCTACAACGA AAAGGTCT 2807 5011 UGGAAGUG UGGUUCAA 1107 TGAAACCA GGCTAGCTACAACGA AAAGGTCT 2809 5011 UGGAAGUG UGGUUCAU 1109 AATGGACA GGCTAGCTACAACGA AAAGGTCC 2801 5016 GGGUUCUA GUCCAUUU 1110 ACAATGGA GGCTAGCTACAACGA AAAGGTCC 2811 5018 GGUUCUAU G UCCAUUCU 1110 AGAATGGA GGCTAGCTACAACGA AAAGGACC 2811 5022 CUAUGUCC A UUCCCAUU 1111 AGAATGGA GGCTAGCTACAACGA AAAAGACC 2811 5028 CCAUUCUC A UUCGAUUCU 1111 AAAACATG GGCTAGCTACAACGA AAAAGACC 2811 5032 UUCGAUUC G UGGCAUGG 1112 GCCAGGAA GGCTAGCTACAACGA AGAATGGA 2815 5035 CAUUCUCA UUUUGAA 1114 AAAACATG GGCTAGCTACAACGA GAAATGAA 2815 5036 CAUUCUGA UUUUGAA 1115 TCAAAACA GGCTAGCTACAACGA GAAATGAA 2815 5037 UUCGUGGC A UGUUUGA 1111 AAAACATG GGCTAGCTACAACGA AAATGAAA 2816 5038 CUUCGAUUC A UUUUGAAU 1116 AAACATG GGCTAGCTACAACGA AAATCAA 2816 5039 CSUGGCAU G UUUUGAAU 1116 AAACATG GGCTAGCTACAACGA CACGAATG 2816 5036 CAUUCGAU A UUUUGAAU 1116 AAACATG GGCTAGCTACAACGA CACGAAT 2816 5037 UUCGUGGC A UGUUUGA 1115 TCAAAACA GGCTAGCTACAACGA CACGAAT 2816 5038 CGCAGCAA AUGUUUGA 1116 CACCTCAG GGCTAGCTACAACGA CACGAAT 2816 5049 UUUGAUUG A UUGGAGGU 1120 CACCTCAG GGCTAGCTACAACGA CACAAAT 2816 5056 AUGUUUGA C UUGGAGGU 1120 CACCTCAG GGCTAGCTACAACGA CACAAAT 2819 5052 GAUUCAAU C UUCGAGG UUCGAGG CACCACAA GGCTAGCTACAACGA CACAACT 2819 5054 UUUGAAGG G UGCACUC 1121 GAGTACCA GGCTAGCTACAACGA CACAACT 2819 5056 UUGGAGCC A UCCAACC 1122 GAGTAGCTACAACGA CACAACT 2819 5066 CACGAGAGU A C	4936	UUUUCUGG A UUCUGGGA	1096	TCCCAGAA GGCTAGCTACAACGA CCAGAAAA	2798
1961 NAGGACA A ULUUUUUU 1099 AAAGATA GGCTAGCTACAACGA ATTGTCCTT 2801 1963 GGACAADI A UCUUUUUU 1100 AAAAAAGA GGCTAGCTACAACGA ATTTGTCC 2802 1975 UUUUUGGA A CUAAAGCA 1101 TGCTTTAG GGCTAGCTACAACGA ATTTGTTC 2804 1981 GAACUAAA G CAAAUUUU 1102 AAAATTG GGCTAGCTACAACGA TCCAAAAA 2803 1981 GAACUAAA G CAAAUUUU 1102 AAAATTG GGCTAGCTACAACGA TTGCTTCA 2804 1992 AADUUUAGA C 1103 GTCTAAAA GGCTAGCTACAACGA TTGCTTTA 2805 1998 AGACCUUU A CCUAUGGA 1105 TCCATAGG GGCTAGCTACAACGA CTAAAATT 2805 1998 AGACCUUU A CCUAUGGA 1105 TCCATAGG GGCTAGCTACAACGA AAAGGTCT 2807 1998 AGACCUUU A CUCUAUGGA 1106 CACTTCCA GGCTAGCTACAACGA AAAGGTCT 2807 1998 AGACCUUU A CUCUAUGGA 1107 TAGAACCA GGCTAGCTACAACGA AGATCCT 2810 1998 AGAGACGU U A UUUUAGGU 1108 AATGGACA GGCTAGCTACAACGA AGATCCA 2810 1998 1	4946	UCUGGGAG G CAAGAAAA	1097	TTTTCTTG GGCTAGCTACAACGA CTCCCAGA	2799
1963 GGACAAN A CUNANGCA 1101 AAAAAGA GGCTAGCTACAACGA ATTGTCC 2802 4975 UUUUUGGA A CUNANGCA 1101 TGCTTTAG GGCTAGCTACAACGA TCCAAAAA 2803 4985 UAAAGCAA A UUUUUAGAC 1102 AAAATTG GGCTAGCTACAACGA TCCAAAAA 2804 4985 UAAAGCAA A UUUUUAGAC 1103 GTCTAAAA GGCTAGCTACAACGA TTAGTTC 2805 4992 AAUUUUAG A CCUUUACC 1104 GGTAAAGG GGCTAGCTACAACGA CTAAAATT 2806 4992 AAUUUUAG A CCUUUACC 1104 GGTAAAGG GGCTAGCTACAACGA CTAAAATT 2806 4992 AAUUUUAG A CCUUUACC 1105 TCCATAGG GGCTAGCTACAACGA CTAAAATT 2806 4998 AGACCUUU A UGGAAGUG 1105 TCCATAGG GGCTAGCTACAACGA AAAAGGTC 2808 5008 CUAUGGAA G UGGUUCUA 1107 TAGAACCA GGCTAGCTACAACGA ATCCAAAA 2809 5010 GUGGUUCUA UUUCUAUUU 1108 ACATAGAA GGCTAGCTACAACGA ATCCAACGA 2810 5011 UGGAAGUG G UUCUAAUGU 1110 AGAATGGAC GGCTAGCTACAACGA ATCAAACCA 2810 5012 GUGUCUAU G UCCCAUUCU 1111 AGAATGGAC GGCTAGCTACAACGA ATCAAACCA 2811 5022 CUAUGUCC A UUCUCAUU 1111 AGAATGGAC GGCTAGCTACAACGA ATCAAACCA 2813 5032 UCUCAUUC G UGGCAUGU 1113 ACATGCAC GGCTACGCTACAACGA ATCAAACCA 2813 5032 UCUCAUUC A UUCUGUGC 1112 GCCACGAA GGCTAGCTACAACGA GAGAACTAC 2816 5035 CAUUCGU G UGGCAUGU 1113 ACATGCAC GGCTACGCTACAACGA GAGAATGA 2815 5035 CAUUCGU G UUUUGAUU 1114 AAAACATG GGCTAGCTACAACGA GAGAATGA 2816 5037 UUUGAUGGC A UUUUUGAUU 1116 AATCAAAA GGCTAGCTACAACGA GAGAATGA 2816 5038 CGUGGCAUG G UUUUGAUU 1116 AATCAAAA GGCTAGCTACAACGA ATCCACCA 2816 5049 UUUGAUUU G UAGCACU 1118 CACTCAAG GCTACAACGA ATACCAAC 2819 5049 UUUGAUUU G UAGCACU 1118 CACTCAAG GCTACAACGA ATACCAAC 2819 5054 UUUGAUUU G UAGCACU 1116 AATCAAAA GGCTAGCTACAACGA CAAAACAT 2819 5054 UUUGAUU G UAGCACU 1121 GAGTGCTA GGCTACAACGA CAAAACAT 2819 5054 UUUGAUU G UAGCACU 1123 GAGTGCTA GGCTACAACGA CAAAACAT 2820 5064 UUUGAUU G UAGCACU 1126 GAGTGCTA GGCTACAACGA CACAAACAT 2820 5076 AGUGUGGC A CUCAACU 1126 G	4957	AGAAAAGG A CAAAUAUC	1098	GATATTTG GGCTAGCTACAACGA CCTTTTCT	2800
4975 UUUUUGGA A CURAAGCA 11.01 TECTTTAG GGCTAGCTACAACGA TTCAATAA 2803 4981 GAACUAAA G CAAAUUUU 11.02 AAARTTIG GGCTAGCTACAACGA TTTAGTTC 2804 4985 UAAAGCAA A UUUUGAGC 11.04 GGTAAAA GGCTAGCTACAACGA TTTAGTTC 2804 4998 AGACCUUU A CCUAUGGA 11.05 TCCATAGA GGCTAGCTACAACGA CTAAAAATT 2806 4998 AGACCUUU A CCUAUGGA 11.05 TCCATAGG GGCTAGCTACAACGA AAAGGTCT 2807 5002 CUUUACCU A UGGAAGUG 11.06 CACTTCCA GGCTAGCTACAACGA AAAGGTCT 2807 5008 CUAUGACCU A UGGAAGUG 11.07 TAGAACCA GGCTAGCTACAACGA AAAGGTCT 2807 5010 UGGAAGUG G UUCUUAUGU 11.07 TAGAACCA GGCTAGCTACAACGA TCCATAGA 2809 5011 UGGAAGUG G UUCUUAUGU 11.09 AATGGACA GGCTAGCTACAACGA CACTTCCA 2810 5016 GUGUUCU A UGUCCAUU 11.09 AATGGACA GGCTAGCTACAACGA ATAGAACC 281.1 5018 GGUUCUU A UGUCCAUU 11.01 AATGAGAA GGCTAGCTACAACGA ATAGAACC 281.1 5022 CUAUGUCC A UUCUCAUU 11.11 AATGAGAA GGCTAGCTACAACGA ATAGAACC 281.2 5023 UCUCAUUC G UGGCAUGU 11.11 AATGAGAA GGCTAGCTACAACGA ATAGAACC 281.2 5024 CCAUUCUC A UUCUCAUU 11.11 AATGAGAA GGCTAGCTACAACGA GACATAGA 281.3 5035 CAUUCUUG G UGGCAUGU 11.13 ACATGCCA GGCTAGCTACAACGA GACACAACGA 281.3 5036 CAUUCUUG G UGGCAUGU 11.14 AAAACATG GGCTAGCTACAACGA GACACAACGA 281.5 5037 UUUGUGGG A UGGUUUGA 11.15 TAAAACA GGCTAGCTACAACGA ACGAAATC 281.5 5039 CGUGGCAU G UUUUGAUU 11.16 AATCAAAA GGCTAGCTACAACGA ACGAAATC 281.9 5049 UUUGUGGCA UUUUGAUU 11.16 AATCAAAA GGCTAGCTACAACGA ACGAAACCA 281.7 5049 UUUGUAGC A UUUGUAGC 11.17 GCTACAAA GGCTAGCTACAACGA CACGAACCA 281.7 5054 UUUGUAGC A CUUCAACU 11.21 GACTGCCA GGCTAGCTACAACGA CACAAACCA 282.7 5054 UUUGAUUG A UUUGAGC 11.17 GCTACAAG GGCTAGCTACAACGA CACAAACCA 282.7 5054 UUUGAUGA C CUCAACC 11.22 GTTGAGT GGCTAGCTACAACGA CACAAACCA 282.7 5054 UUUGAUGA C CUCAACC 11.22 GTTGAGT GGCTAGCTACAACGA CACAAACCA 282.7 5056 AAGGGUGGC A CUCAACC 11.22 GTTGAGT GGCTAGCTACAACGA CACCACCA 282.7 5061 CACUGAGG G UGGCACCC 11.21 GACTGCCA GGCTAGCTACAACGA CACCACCA 282.7 5071 GGCACUCA C CUCAACC 11.22 GTTGAGT GGCTAGCTACAACGA CACCACCA 282.7 5072 GAGCACCA A CUCUCAAC 11.22 GTTGAGT GGCTAGCTACAACGA CACCACCA 282.7 5073 GGCACCAC A CUCUCAAC 11.23 GAGTTGGG GGCTAGCTACAACGA CACCACCA 28	4961	AAGGACAA A UAUCUUUU	1099	AAAAGATA GGCTAGCTACAACGA TTGTCCTT	2801
981 GAACUAAA G CAAAUUUU 1102 AAAATTTG GGCTAGCTACAACGA TTTAGTTC 2804 4985 UAAAGCAA A UUUUAGAC 1103 GTCTAAAA GGCTAGCTACAACGA CTACATTT 2805 4992 AAUUUUAG A CCUUUACC 1104 GGTAAAAG GGCTAGCTACAACGA CTACATAT 2805 4998 AGACCUUU A CCUUUAGA 1105 TCCATAGG GGCTAGCTACAACGA CTAAAAAT 2806 5002 CUUUACCU A UGGAAGUG 1106 CACTTCCA GGCTAGCTACAACGA AAAGGTCT 2807 5003 CUUUACCU A UGGAAGUG 1107 TAGAACCA GGCTAGCTACAACGA AGAGTAAAG 2809 5010 UGGAAGUG G UUCUAUGU 1107 TAGAACCA GGCTAGCTACAACGA AGACCAC 2811 5011 UGGAAGUG G UUCUAUGU 1109 AATGGACA GGCTAGCTACAACGA ACATCCA 2810 5016 GUGGUUCU A UGUCCAUU 1110 AATAGGAC GGCTAGCTACAACGA ACATCCA 2810 5018 GGUUCUAU G UCCUAUU 1111 AGAATGGA GGCTAGCTACAACGA ACATCCA 2812 5018 GGUUCUAU G UUCUCAUU 1111 AGAATGGA GGCTAGCTACAACGA ACAACCA 2811 5028 CCAUUCUC A UUCUCAUU 1111 AGAATGGA GGCTAGCTACAACGA AGAACCAC 2812 5032 UCUCABUC G UGGCABUU 1113 ACATGGAC GGCTAGCTACAACGA GGAATAGA 2815 5035 CAUUCGUG G UGGCABUU 1114 AAAACATG GGCTAGCTACAACGA GGAATAGA 2815 5036 CAUUCGUG G UGGCABUU 1114 AAAACATG GGCTAGCTACAACGA GGAATAGA 2815 5037 UUCGUGGC A UUUUGAAU 1115 TCAAAACA GGCTAGCTACAACGA CACGAATG 2816 5039 CGUGGCAU G UUUUGAAU 1116 AATCAAAA GGCTAGCTACAACGA ACGAACTA 2816 5045 AUGUUUG A UUUUGADU 1116 AATCAAAA GGCTAGCTACAACGA ACGAACTA 2819 5045 AUGUUUG A UUUUGAGC 1117 GCTACAAA GGCTAGCTACAACGA ACGAACTA 2819 5045 AUGUUUG A UUUGAGC 1117 GCTACAAA GGCTAGCTACAACGA ACGAACTA 2819 5046 AUGUUUG A UUUGAGC 1111 GCTACATG GGCTAGCTACAACGA ACGAACTA 2820 5051 UUUGABCC A CUCAACGG 1112 GACTGCCA GGCTAGCTACAACGA ACCACAACAA 2820 5052 GAUUUGUA G CACUGAAG 1112 GACTGCA GGCTAGCTACAACGA ACCACAACAACAA CACCAACAA 1122 GACTGCCA GGCTAGCTACAACGA ACCACAACAACAA 12820 5066 AGGGUGGC A CUCAACCU 1122 GACTGCCA GGCTAGCTACAACGA CACCACTAAA 2822 5061 CACUGAAG G UGCACUC 1123 GAGTTGCA GGCTAGCTACAACGA CACCACTA 2825 5071 GGCACUCA A CUCUAGCC 1123 GAGTTGCA GGCTAGCTACAACGA CACCACTA 2825 5071 GGCACUCA A CUCUAGCC 1124 GACTGCCA GGCTAGCTACAACGA CACCACTA 2825 5071 GGCACUCA A CUCUAGCC 1123 GAGTTGCA GGCTAGCTACAACGA CACCACTA 2824 5086 AGGCCAU A CUCUAGCC 1123 GAGTTGCA GGCTAGCTACAACGA CACCACTA 2	4963	GGACAAAU A UCUUUUUU	1100	AAAAAAGA GGCTAGCTACAACGA ATTTGTCC	2802
4985 UNANGCAR A UUUUNGGC 1104 GGTARARA GGCTAGCTACAACGA TTGCTTTA 2805 4992 AAUUUUNG A CCUUUNGC 1104 GGTARARG GGCTAGCTACAACGA CTARART 2806 4998 AGRACUUU A CCUAUNGA 1105 TCCATAGG GGCTAGCTACAACGA AAAGGTCT 2807 5002 CUUUNGCU A UGGARGUG 1106 CACTTCCA GGCTAGCTACAACGA AAAGGTCT 2807 5008 CUAUNGAA G UGGUUCUA 1107 TAGAACCA GGCTAGCTACAACGA AAAGGTCA 5010 UNGGARGUG UUCUNDUU 1108 ACATAGAA GGCTAGCTACAACGA CACTTCCA 2810 5016 GUGGUUCU A UGUCCAUU 1109 AATGGACA GGCTAGCTACAACGA CACTTCCA 2810 5018 GGUUCUAU G UCCAUUCU 1110 AGAATGGA GGCTAGCTACAACGA AGAACCAC 2811 5022 CUAUNGUC A UUCUCAUU 1111 AATGAGAA GGCTAGCTACAACGA AGAACCAC 2812 5022 CUAUNGUC A UUCUCAUU 1111 AATGAGAA GGCTAGCTACAACGA AGAACCAC 2812 5023 UCUCAUUC G UGGCAUUCU 1111 AATGAGAA GGCTAGCTACAACGA GGACATAG 2813 5035 CAUUCGUU G UGGCAUUU 1111 AAACATGCA GGCTAGCTACAACGA GAAATGAGA 2815 5035 CAUUCGUU G UGGCAUUU 1114 AAAACATG GGCTAGCTACAACGA GAAATGAGA 2816 5037 UUCGUUG G CAUGUUUU 1114 AAAACATG GGCTAGCTACAACGA GAAATGAGA 2816 5037 UUCGUUG A UUUUUGAA 1115 TCAAAACA GGCTAGCTACAACGA GAATGAGA 2816 5039 GGUGGCAU G UUUUUGAU 1116 AATCAAA GGCTAGCTACAACGA ACGAATG 2816 5049 UUUGAUUU G UAGCACUU 1116 AATCAAA GGCTAGCTACAACGA CAAACGA 2817 5045 AUGUUUUG A UUUGUAGC 1117 GCTACAAA GGCTAGCTACAACGA CAAAACAA 2820 5052 GAUUUGUA G UAGCACUU 1118 CAGTACCAA GGCTAGCTACAACGA CAAAACAA 2820 5052 GAUUUGUA G UAGCACUU 1120 CCTCAGTG GGCTAGCTACAACGA CAAAACAA 2820 5054 UUUGAAUU G UAGCACUU 1121 CAGTACCAA GGCTAGCTACAACGA CAAAACAA 2820 5056 UUUGAAUU G UAGCACUU 1121 GAGTACCAA GGCTAGCTACAACGA CAAAACAA 2820 5056 UUUGAAUU G UAGCACUU 1122 GTTGAGTAG GGCTAGCTACAACGA CAAAACAA 2820 5057 GAUUUGUA G UAGCACUU 1121 GAGTACCAA GGCTAGCTACAACGA CACACCAC 2821 5066 AGGGUGG A CUCAACU 1122 GTTGAGTAG GGCTAGCTACAACGA CACCCTCA 2824 5066 AGGGUGG A CUCAACU 1123 GAGTTGGA GGCTAGCTACAACGA CACCCTCA 2825 5078 AACUCUB G CCCUUCAA 1123 GAGTTGGA GGCTAGCTACAACGA CACCCTCA 2825 5071 GGCACUCA A CUUUGGC 1127 GCCAGAG GGCTAGCTACAACGA CACCCTCA 2826 5084 GAGCCCAU A CUUUGGC 1127 GCCAGAG GGCTAGCTACAACGA ATCGAGT 2827 5082 CUGAGGCC A UAAGGUU 1126 CAAAAGTA GGCTAGCTACAACGA ATC		UUUUUGGA A CUAAAGCA	1101	TGCTTTAG GGCTAGCTACAACGA TCCAAAAA	2803
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4998 AGACCUUU A CCUAUGGA 1105 TCCATAGG GGCTAGCTACAACGA AAAGGTCT 5002 CUUUACU A UGGAAGUG 1106 CACTTCCA GGCTAGCTACAACGA AGGTAAAG 2809 5008 CUAUGGAA G UGGUUCUA 1107 TAGAACCA GGCTAGCTACAACGA TTCCATAG 2809 5011 UGGAAGUG G UUCUAUGU 1108 ACATAGAA GGCTAGCTACAACGA TTCCATAG 5016 GUGGUUCU A UGUCCAUU 1109 AATGGACA GGCTAGCTACAACGA AGAACCAC 2811 5016 GUUCUAUU G UCCAUUCU 1110 AGAATGGA GGCTAGCTACAACGA AGAACCAC 2811 5018 GGUUCUAU G UCCAUUCU 1110 AGAATGGA GGCTAGCTACAACGA AGAACCAC 2812 5022 CUAUGUCC A UUCUCAUU 1111 AATGGAA GGCTAGCTACAACGA AGAACCAC 2813 5028 CCAUUCUC A UUCGGUUCU 1111 AATGGAA GGCTAGCTACAACGA AGAACCAC 2813 5028 CCAUUCUC A UUCGGUUU 1111 AATGGAA GGCTAGCTACAACGA AGAACCAC 2813 5032 UCUCAUUC G UGGCAUGU 1112 GCCACGAA GGCTAGCTACAACGA GGACATAG 5032 UCUCAUUC G UGGCAUGU 1114 AAAACATG GGCTAGCTACAACGA GAATGGAA 5035 CAUUCUGU G CAUGUUUU 1114 AAAACATG GGCTAGCTACAACGA GAATGGAA 5037 UUCUGUGA UUUUGAAU 1116 AATCAAAAA GGCTAGCTACAACGA GCCAACGAA 2817 5049 CUUGGAUU G UAUCUAUU 1116 AATCAAAAA GGCTAGCTACAACGA AAACCAT 2819 5049 UUUGAUUU G UAGCACUG 1117 GCTACAAA GGCTAGCTACAACGA AAACCAT 2819 5049 UUUGAUUU G UAGCACUG 1118 CASTGCTA GGCTAGCTACAACGA AAACCAT 2820 5052 GAUUUUGAA CUUGAGGGU 1119 CCTCAGTG GGCTAGCTACAACGA AAACCAT 2821 5061 CACUCAGG G UGGCACUC 1121 GAGTGCCA GGCTAGCTACAACGA CCTCAGTG 5054 UUUGUAGC A CUCUAACC 1122 GTTGAGTG GGCTAGCTACAACGA CCTCCAGTG 2825 5064 UGAGGGUG G CACUCAACC 1122 GTTGAGTG GGCTAGCTACAACGA CCTCCAGTG 2826 5078 AACUCUGA G CUCCUAACC 1122 GTTGAGTG GGCTAGCTACAACGA CCTCCAGTG 2826 5078 AACUCUGA G CCCAUCUA 1123 GAGTTGGG GGCTAGCTACAACGA CCCCTCCA 2826 5078 AACUCUGA G CCCAUCUA 1124 GCTCAGAGG GGCTAGCTACAACGA CCCCCCCA 2826 5078 AACUCUGA G CCCAUCUA 1125 GAGTTGGG GGCTAGCTACAACGA CCCCCCCA 2826 5078 AACUCUGA G CUCCUACA 1122 GTTGAGTG GGCTAGCTACAACGA CCCACCCT 2825 5071 GGCACUCA A CUCUGAGC 1124 GCTCAGAGG GGCTAGCTACAACGA CACAAAGAT 2827 5082 CUGAGCCC A UACUUUGG 1126 CACAAAGG GGCTAGCTACAACGA CACAAACT 2827 5082 CUGAGCCC A UACUUUGG 1127 GCCAAAAG GGCTAGCTACAACGA CACAAACT 2827 5081 UACUUUGG G CCCCUCAA 1128 GGCTAGCTAGCTACAACGA CACAAACT 2827 5081 UACU	\vdash	AAUUUUAG A CCUUUACC	1104	GGTAAAGG GGCTAGCTACAACGA CTAAAATT	2806
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5011 UGGANGUG G UUCUAUGU 1108 ACATAGNA GGCTAGCTACAACGA CACTTCCA 2810 5016 GUGGUUCU A UGUCCAUU 1109 AATGGACA GGCTAGCTACAACGA AGAACCA 2811 5018 GGUUCUAU G UCCAUUCU 1110 AATGGACA GGCTAGCTACAACGA AGAACCA 2812 5022 CUAUGUCC A UUCUCAUU 1111 AATGGAGA GGCTAGCTACAACGA GGAAATGA 2813 5028 CCAUUCUC A UUCUGUGC 1112 GCCACGAA GGCTAGCTACAACGA GAAATGA 2814 5032 UCUCADUC G UGGCAUGU 1113 ACATGCCA GGCTAGCTACAACGA GAAATGA 2815 5035 CAUUCUGG G CAUGUUU 1114 AAAACAT GGCTACCAACGA CACGAAATG 2816 5037 UUCGUGG A UGUUUGAUU 1116 AATCAAAA GGCTACCAACGA CACGAAACGT 2817 5039 CGUGGCAU G UUUUGAUU 1116 AATCAAAA GGCTACCAACGA ATGCCAACGA 2818 5049 UUUGAUUG A UUUGAUU 1116 CACTACAAA GGCTACCAACGA CAAAACAT 2819 5052 GAUUUGAA G CACUCAAC 1119 CCCCCAGG GGCTACCTACAACGA ATACCAAA 2821 5054 UUUGAUUGA G CACUCAAC 1122 GACTAGCTACAACGA C			1107	TAGAACCA GGCTAGCTACAACGA TTCCATAG	2809
5016 GUGGUUCU A UGUCCAUUC 1109 AATGGACA GGCTAGCTACAACGA AGAACCAC 2811 5018 GGUUCUAU G UCCAUUCU 1110 AGAATGGA GGCTAGCTACAACGA ATAGAACC 2812 5022 CUAUGUCC A UUCCCAUU 1111 AATAGAGAA GGCTAGCTACAACGA GAGAATAG 2813 5028 CCADUCUC G UGGCAUGU 1112 GCCACGAA GGCTAGCTACAACGA GAGAATG 2814 5032 UCUCADUUC G UGGCAUGU 1113 ACATGCCA GGCTAGCTACAACGA CAGAATG 2816 5035 CAUUCGUG G CAUGUUU 1114 AAAACATG GGCTAGCTACAACGA CACGAATG 2816 5037 UUCGAUUG A UGUUUGAU 1115 TCAAAACA GGCTAGCTACAACGA CACCACCACC 2816 5045 AUGUUUGA U UUUGAUC 1116 AATCAAAA GGCTAGCTACAACGA ATACAACACACCACCACCACCACCACCACCACCACCACCA			1108	ACATAGAA GGCTAGCTACAACGA CACTTCCA	2810
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5028 CCAUUCUC A UUCGUGGC 1112 GCCACGAA GGCTAGCTACAACGA GAGAATGG 2814 5032 UCUCADUC G UGGCAUGU 1113 ACATGCCA GGCTAGCTACAACGA GAATGACA 2815 5035 CAUUCGUG G CADGUUU 1114 AAAACATG GGCTAGCTACAACGA CACGAATG 2816 5037 UUCGUGGC A UGUUUGA 1115 TCAAAACA GGCTAGCTACAACGA ATGCCACG 2818 5039 CGUGGCAU G UUUUGAUU 1116 AATCAAAA GGCTAGCTACAACGA ATGCCACG 2818 5045 AUGUUUGA 1UUGAUU 1117 GCTACAAA GGCTAGCTACAACGA ATGCCACG 2818 5049 UUUGAUUU G UAGCACUG 1118 CACTGCTA GGCTAGCTACAACGA AAATCAAA 2820 5052 GAUUUGUA G CACUGAGG 1119 CCTCAGTG GGCTAGCTACAACGA ACCACACACACACACACACACACACACACACA			1111	AATGAGAA GGCTAGCTACAACGA GGACATAG	2813
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5035 CAUUCGUG G CAUGUUUU 1114 AAAACATG GGCTAGCTACAACGA CACGAATG 2816 5037 UUCGUGGC A UGUUUUGA 1115 TCAAAACA GGCTAGCTACAACGA GCCACGAA 2817 5039 CGUGGCAU G UUUUGAUU 1116 AATCAAAA GGCTAGCTACAACGA ATGCCACG 2818 5045 AUGUUUUG A UUUGAGC 1117 GCTACAAA GGCTAGCTACAACGA CAAAACAT 2819 5049 UUUGAUUU G UAGCACUG 1118 CAGTGCTA GGCTAGCTACAACGA AAATCAAA 2820 5052 QAUUUGUA G CACUGAGG 1119 CCTCAGTG GGCTAGCTACAACGA AAATCAAA 2821 5054 UUUGAGC A CUCAGGGU 1120 ACCCTCAG GGCTAGCTACAACGA CCTCAGAA 2822 5061 CACUGAGG G UGGCACUC 1121 GAGTGCCA GGCTAGCTACAACGA CCTCAGACGA 2823 5064 UGAGGGUG A CUCAACC 1122 GTTGAGT GGCTAGCTACAACGA CACCCTC 2824 5066 AGGGUGGC A CUCUGACC 1123 GAGTTGGG GGCTAGCTACAACGA CACCCTC 2825 5071 GGCACUCA A CUCUGAGC 1124 GCTCAGGG GGCTAGCTACAACGA TCAGAGTT 2827 5082 CUGAGCCC A UACUUUUG 1126 CAAAGTA GGCTACAACGA TCAGAGTT <	—		1113	ACATGCCA GGCTAGCTACAACGA GAATGAGA	2815
1115			1114	AAAACATG GGCTAGCTACAACGA CACGAATG	2816
CGUGGCAU G UUUUGAUU 1116 AATCAAAA GGCTAGCTACAACGA ATGCCACG 2818 5045 AUGUUUUG A UUUGUAGC 1117 GCTACAAA GGCTAGCTACAACGA CAAAACAT 2819 5049 UUUGAUUU G UAGCACUG 1118 CAGTGCTA GGCTAGCTACAACGA AAATCAAA 2820 5052 GAUUUGUA G CACUGAGG 1119 CCTCAGTG GGCTAGCTACAACGA TACAAATC 2821 5054 UUUGUAGC A CUGAGGGU 1120 ACCCTCAG GGCTAGCTACAACGA GCTACAAA 2822 5061 CACUGAGG G UGGCACUC 1121 GAGTGCCA GGCTAGCAACGA CCTCAGTG 2823 5064 UGAGGGUG G CACUCAAC 1122 GTTGAGTG GGCTAGCAACGA CCCCTCA 2824 5066 AGGGUGGC A CUCAACUC 1123 GAGTTGAG GGCTAGCAACGA CCCCCTCA 2825 5071 GGCACUCA A CUCUGAGC 1124 GCTCAGAG GGCTAGCAACGA CCACCCT 2825 5078 AACUCUGA G CCCAUACU 1125 AGTATGGG GGCTAGCAACGA TAGAGTGC 2827 5082 CUGAGCCC A UACUUUUG 1126 CAAAAGTA GGCTAGCAACGA TCAGAGTT 2827 5084 GAGCCCAU A CUUUUGGC 1127 GCCAAAAG GGCTAGCTACAACGA GGGCTCAG 2828 5091 UACUUUUG G CUCCUCUA 1128 TAGAGGAG GGCTAGCTACAACGA ATGGGCTC 2829 5091 UACUUUUG G CUCCUCUA 1128 TAGAGGAG GGCTAGCTACAACGA CAAAAGTA 2830 5100 CUCCUCUA G UAAGAUGC 1129 GCATCTTA GGCTAGCTACAACGA CAAAAGTA 2830 5100 CUCCUCUA G UAAGAUGC 1129 GCATCTTA GGCTAGCTACAACGA CAAAAGTA 2830 5100 CUCCUCUA G UAAGAUGC 1129 GCATCTTA GGCTAGCTACAACGA CAAAAGTA 2830 5100 CUCCUCUA G UAAGAUGC 1129 GCATCTTA GGCTAGCTACAACGA CAAAAGTA 2830 5101 AGUAGGA A UGCACUGA 1131 TTCAGTG GGCTAGCACAACGA ATCATCTA 2833 5102 WAAGAUGC A CUGAAAAC 1132 GTTTTCAGT GGCTAGCTACAACGA ATCTTACT 2833 5103 AGAGUUA G CACAGAGUU 1134 AACTCTGG GGCTAGCTACAACGA TAGAGGA CTTACTTA 2834 5116 CACUGAAA A CUUAGCCA 1133 TGGCTAAG GGCTAGCTACAACGA TTCATGT 2835 5121 AAAACUUA G CAGAGUU 1134 AACTCTGG GGCTAGCTACAACGA TACGTTTA 2834 5121 AAAACUUA G CCAGAGUU 1134 AACTCTGG GGCTAGCTACAACGA TTCAGTG 2837 5132 AGAGUUAG G UUAGGUUG 1136 GGAGACAA GGCTAGCTACAACGA TAACTTT 2836 5135 GUUAGGUU G UUCCCACG 1136 GGAGACAA GGCTAGCTACAACGA AACCTTAC 2839 5143 GUCUCCAG G CUUGAGCC 1139 GGCCATCA GGCTAGCACCAA AACCTAAC 2839		UUCGUGGC A UGUUUUGA	1115	TCAAAACA GGCTAGCTACAACGA GCCACGAA	2817
5045 AUGUUUUG A UUUGUAGC 1117 GCTACAAA GGCTAGCTACAACGA CAAAACAT 2819 5049 UUUGAUUU G UAGCACUG 1118 CAGTGCTA GGCTAGCTACAACGA AAATCAAA 2820 5052 GAUUUGUA G CACUGAGG 1119 CCTCAGTG GGCTAGCTACAACGA TACAAATC 2821 5054 UUUGUAGC A CUGAGGGU 1120 ACCCTCAG GGCTAGCTACAACGA CTACAAAA 2822 5061 CACUGAGG G UGGCACUC 1121 GAGTGCCA GGCTAGCAACGA CCTCAGTG 2823 5064 UGAGGGUG G CACUCAAC 1122 GTTGAGTG GGCTAGCAACGA CCCCTCA 2824 5066 AGGGUGGC A CUCAACUC 1123 GAGTTGGA GGCTAGCAACGA CCACCCTC 2825 5071 GGCACUCA A CUCUGAGC 1124 GCTCAGAG GGCTAGCTACAACGA CCACCCT 2825 5078 AACUCUGA G CCCAUACU 1125 AGTATGGG GGCTAGCTACAACGA TGAGTGC 2827 5082 CUGAGCCC A UACUUUGG 1126 CAAAAGTA GGCTAGCTACAACGA TCAGAGTT 2827 5084 GAGCCCAU A CUUUUGG 1127 GCCAAAAG AGCTACAACGA TAGAGGGT 2829 5091 UACUUUUG G CUCCUCUA 1128 TAGAGGAG GGCTAGCTACAACGA ATGGGCTC 2829 5091 UACUUUUG G CUCCUCUA 1128 TAGAGGAG GGCTAGCTACAACGA CAAAAGTA 2830 5100 CUCCUCUA G UAAGAUGC 1129 GCATCTTA GGCTAGCTACAACGA TAGAGGAG 2831 5105 CUAGGAG A UAGAUUGC 1129 GCATCTTA GGCTAGCTACAACGA TAGAGGAG 2831 5107 AGUAAGAU A CUUUGCCA 1130 TCAGTGCA GGCTAGCTACAACGA ATCTTACT 2833 5109 UAAGAUGC A CUGAAAAC 1132 GTTTTCAGT GGCTAGCTACAACGA ATCTTACT 2833 5109 UAAGAUGC A CUGAAAAC 1132 GTTTTCAGT GGCTAGCTACAACGA ATCTTACT 2833 5109 UAAGAUGC A CUGAAAAC 1131 TTTCAGTG GGCTAGCTACAACGA TTTCAGTG 2835 5121 AAAACUUA G CAGAGUU 1134 AACTCTGG GGCTAGCTACAACGA TTTCAGTG 2835 5121 AAAACUUA G CCAGAGUU 1134 AACTCTGG GGCTAGCTACAACGA TACGTTT 2834 5132 AGAGUUAG G UUGGCUCC 1136 GGAGACAA GGCTAGCTACAACGA TACGTTT 2836 5133 GUUAGGUU G UUCUCCC 1136 GGAGACAA GGCTAGCTACAACGA TACGTTT 2838 5134 GUCUCCAG G CUUGAGUG 1139 GGCCATCA GGCTAGCTACAACGA AACCTAAC 2839 5143 GUCUCCAG G CUUGAGUG 1139 GGCCATCA GGCTAGCTACAACGA AACCTAAC 2839 5143 GUCUCCAG G CUUGAGUG 1139 GGCCATCA GGCTAGCTACAACGA AACCTAAC 2839			1116	AATCAAAA GGCTAGCTACAACGA ATGCCACG	2818
5049 UUUGAUUU G UAGCACUG 1118 CAGTGCTA GGCTAGCTACAACGA AAATCAAA 2820 5052 GAUUUGUA G CACUGAGG 1119 CCTCAGTG GGCTAGCTACAACGA TACAAATC 2821 5054 UUUGUAGC A CUGAGGGU 1120 ACCCTCAG GGCTAGCTACAACGA CCTCAGTG 2822 5061 CACUGAGG G UGGCACUC 1121 GAGTGCCA GGCTAGCTACAACGA CCTCAGTG 2823 5064 UGAGGGUG G CACUCAAC 1122 GTTGAGTG GGCTAGCTACAACGA CACCCTCA 2824 5066 AGGGUGGC A CUCAACUC 1123 GAGTTGAG GGCTAGCTACAACGA CACCCTCA 2824 5066 AGGGUGGC A CUCAACUC 1123 GAGTTGAG GGCTAGCTACAACGA CCACCCTC 2825 5071 GGCACUCA A CUCUGAGC 1124 GCTCAGAG GGCTAGCTACAACGA TGAGTGCC 2826 5078 AACUCUGA G CCCAUACU 1125 AGTATGGG GGCTAGCTACAACGA TGAGTGCC 2826 5082 CUGAGCCC A UACUUUUG 1126 CAAAAGTA GGCTAGCTACAACGA TCAGAGTT 2827 5084 GAGCCCAU A CUUUUGGC 1127 GCCAAAAG GGCTAGCTACAACGA ATGGGCTCA 2829 5091 UACUUUUG G CUCCUCUA 1128 TAGAGGAG GGCTAGCTACAACGA ATGGGCTC 2829 5091 UACUUUUG G CUCCUCUA 1128 TAGAGGAG GGCTAGCTACAACGA CAAAAGTA 2830 5100 CUCCUCUA G UAAGAUGC 1129 GCATCTTA GGCTAGCTACAACGA TAGAGGAG 2831 5105 CUAGUAAG A UGCACUGA 1130 TCAGTGCA GGCTAGCTACAACGA CTTACTAG 2832 5107 AGUAAGAU G CACUGAAA 1131 TTTCAGTG GGCTAGCTACAACGA CTTACTAG 2832 5109 UAAGAUGC A CUGAAAAC 1132 GTTTTCAG GGCTAGCTACAACGA CTTACTAC 2833 5109 UAAGAUGC A CUGAAAAC 1132 GTTTTCAG GGCTAGCTACAACGA CTTACTAC 2834 5116 CACUGAAA A CUUAGCCA 1133 TGGCTAAG GGCTAGCTACAACGA TTTCAGTG 2835 5121 AAAACUUA G CCAGAGUU 1134 AACTCTGG GGCTAGCTACAACGA TTTCAGTG 2835 5121 AAAACUUA G CCAGAGUU 1134 AACTCTGG GGCTAGCTACAACGA TCTGGCTA 2837 5132 AGAGUUAG G UUGUCCCC 1136 GGAGACAA GGCTAGCTACAACGA TCTGGCTA 2837 5133 GGCCAGG G UUGAGGUG 1136 GGAGACAA GGCTAGCTACAACGA TCTGGCTA 2839 5143 GUCUCCAGG CAUGAUG 1139 GGCCATCA GGCTAGCTACAACGA CTAACTCT 2838 5146 UCCAGGCC A UGAUGGCC 1139 GGCCATCA GGCTAGCTACAACGA CTAACTCT 2838		AUGUUUUG A UUUGUAGC	1117	GCTACAAA GGCTAGCTACAACGA CAAAACAT	2819
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5061 CACUGAGG G UGGCACUC 1121 GAGTGCCA GGCTAGCTACAACGA CCTCAGTG 2823 5064 UGAGGGUG G CACUCAAC 1122 GTTGAGTG GGCTAGCTACAACGA CACCCTCA 2824 5066 AGGGUGGC A CUCAACUC 1123 GAGTTGAG GGCTAGCTACAACGA GCCACCCT 2825 5071 GGCACUCA A CUCUGAGC 1124 GCTCAGAG GGCTAGCTACAACGA TGAGTGCC 2826 5078 AACUCUGA G CCCAUACU 1125 AGTATGGG GGCTAGCTACAACGA TCAGAGTT 2827 5082 CUGAGCCC A UACUUUUG 1126 CAAAAGTA GGCTAGCTACAACGA TCAGAGTT 2827 5084 GAGCCCAU A CUUUUGGC 1127 GCCAAAAG GGCTAGCTACAACGA ATGGGCTC 2829 5091 UACUUUUG G CUCCUCUA 1128 TAGAGGAG GGCTAGCTACAACGA ATGGGCTC 2829 5091 UACUUUUG G CUCCUCUA 1128 TAGAGGAG GGCTAGCTACAACGA CAAAAGTA 2830 5100 CUCCUCUA G UAAGAUGC 1129 GCATCTTA GGCTAGCTACAACGA TAGAGGAG 2831 5105 CUAGUAAG A UGCACUGA 1130 TCAGTGCA GGCTAGCTACAACGA CTTACTAG 2832 5107 AGUAAGAU G CACUGAAA 1131 TTTCAGTG GGCTAGCTACAACGA ATCTTACT 2833 5109 UAAGAUGC A CUGAAAAC 1132 GTTTTCAG GGCTAGCTACAACGA GCATCTTA 2834 5116 CACUGAAA A CUUAGCCA 1133 TGGCTAAG GGCTAGCTACAACGA TTTCAGTG 2835 5121 AAAACUUA G CCAGAGUU 1134 AACTCTGG GGCTAGCTACAACGA TATCAGTG 2835 5121 AAAACUUA G CCAGAGUU 1134 AACTCTGG GGCTAGCTACAACGA TTTCAGTG 2835 5121 AAAACUUA G CCAGAGUU 1134 AACTCTGG GGCTAGCTACAACGA TATCAGTG 2835 5122 UAGCCAGA G UUAGGUUG 1135 CAACCTAA GGCTAGCTACAACGA TCTGGCTA 2837 5132 AGAGUUAG G UUGUCUCC 1136 GGAGACAA GGCTAGCTACAACGA TCTGGCTA 2838 5135 GUUAGGUU G UCUCCAGG 1137 CCTGGAGA GGCTAGCTACAACGA ACCTAAC 2839 5143 GUCUCCAG C CAUGAUG 1138 CATCATGG GGCTAGCTACAACGA CTAACTCT 2838 5146 UCCAGGCC A UGAUGGCC 1139 GGCCATCA GGCTAGCTACAACGA CTGAGAC 2840		UUUGUAGC A CUGAGGGU	1120	ACCCTCAG GGCTAGCTACAACGA GCTACAAA	2822
5064 UGAGGGUG G CACUCAAC 1122 GTTGAGTG GGCTAGCTACAACGA CACCCTCA 2824 5066 AGGGUGGC A CUCAACUC 1123 GAGTTGAG GGCTAGCTACAACGA GCCACCCT 2825 5071 GGCACUCA A CUCUGAGC 1124 GCTCAGAG GGCTAGCTACAACGA TGAGTGCC 2826 5078 AACUCUGA G CCCAUACU 1125 AGTATGGG GGCTAGCTACAACGA TCAGAGTT 2827 5082 CUGAGCCC A UACUUUUG 1126 CAAAAGTA GGCTAGCTACAACGA GGGCTCAG 2828 5084 GAGCCCAU A CUUUUGGC 1127 GCCAAAAG GGCTAGCTACAACGA ATGGGCTC 2829 5091 UACUUUUG G CUCCUCUA 1128 TAGAGGAG GGCTAGCTACAACGA CAAAAGTA 2830 5100 CUCCUCUA G UAAGAUGC 1129 GCATCTTA GGCTAGCTACAACGA TAGAGGAG 2831 5105 CUAGUAAG A UGCACUGA 1130 TCAGTGCA GGCTAGCTACAACGA CTACTAG 2832 5107 AGUAAGAU G CACUGAAA 1131 TTTCAGTG GGCTAGCTACAACGA ATCTTACT 2833 5109 UAAGAUGC A CUGAAAAC 1132 GTTTTCAGTG GGCTAGCTACAACGA ATCTTACT 2834 5116 CACUGAAA A CUUAGCCA 1133 TGGCTAAG GGCTAGCTACAACGA TTTCAGTG 2835 5121 AAAACUUA G CCAGAGUU 1134 AACTCTGG GGCTAGCTACAACGA TTTCAGTG 2835 5121 AAAACUUA G CCAGAGUU 1134 AACTCTGG GGCTAGCTACAACGA TTTCAGTG 2837 5132 AGAGUUAG G UUAGGUUG 1135 CAACCTAA GGCTAGCTACAACGA TCTGGCTA 2837 5132 AGAGUUAG G UUGUCUCC 1136 GGAGACAA GGCTAGCTACAACGA CTAACTCT 2838 5135 GUUAGGUU G UCUCCAGG 1137 CCTGGAGA GGCTAGCTACAACGA CTAACTCT 2838 5143 GUCUCCAG G CCAUGAUG 1138 CATCATGG GGCTAGCTACAACGA CTGGAGAC 2840 5146 UCCAGGCC A UGAUGGCC 1139 GGCCATCA GGCTAGCTACAACGA CTGGAGAC 2840		CACUGAGG G UGGCACUC	1121	GAGTGCCA GGCTAGCTACAACGA CCTCAGTG	2823
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5234 AUUAUUCU G UUUUGCAC 1162 GTGCAAAA GGCTACCACGA AGAATAAT 2864 5239 UCUGUUUU G CACAGUUA 1163 TAACTGTG GGCTACCACGA AAAACAA 2865 5241 UGUUUUGC A CAGUUAGU 1164 ACTAACTG GGCTACCACAGA AAAACAA 2866 5244 UUUGCACA G UUAGUUGU 1165 ACAACTAA GGCTAGCTACAACGA TATGCAAA 2867 5248 CACAGUUA G UUGUGAAA 1166 TTCCACAA GGCTAGCTACAACGA TATCCATT 2869 5251 AGUUAGUU G UGAAAGAA 1167 TTCTCTCA GGCTAGCTACAACGA TATCTCTC 2869 5261 GAAAGAAA G CUGAGAG 1168 CTTCTCAG GGCTAGCACACAA TCTTCTC 2870 5271 UGAGAAAAU G CAGUCCU 1170 GGACTGCACAACGA TCTCATCAACGA TCTCTCA 2871 5277 GAAUGAAA A UGCAGUCC 1171 CGGCTAGCTACAACGA TTCCATCA 2872 5282 AAAAUGCA G UCCUGAGG 1172 CCTCAGGA GGCTAGCAACGA TCCATCAACGA TTCCATCA 2875 5303 UUUUCUCC A UAUCAAAA 1174 TTTTGATA GGCTACAACGA ATGGAAAAA 2876 5311 ALUALCAAA A CGAGGGCU 1175 CGCTTTTAGAACGA ATGGAA	5226	UUCUUGGU A UUAUUCUG	1160	CAGAATAA GGCTAGCTACAACGA ACCAAGAA	2862
5239 UCUGUUUU G CACAGUUA 1163 TAACTGTG GGCTACCAACGA AAAACAGA 2865 5241 UGUUUUGC A CAGUUAGU 1164 ACTAACTG GGCTACCAACGA GCAAAACA 2866 5244 UUUGCACA G UUAGUUGU 1165 ACAACTAA GGCTACCAACGA TGTGCAAA 2867 5248 CACAGUUA G UUGUGAAA 1166 TTCCTCAA GGCTACCACACGA TAACTGT 2869 5251 AGUUAGUU G UGAAAGAA 1166 CTTCTCAG GGCTACCACACGA TTTCTTC 2870 5261 GAAAGAA G CUGAGAAC 1169 CATTTCA GGCTACCACACGA TTTCTCTC 2871 5271 UGAGAAGA A UGAAAACC 1170 GGACTGCA GGCTACCAACGA TTTCATTC 2872 5272 QAAUGAAA A UGCAGUCC 1171 CAGGACTG GGCTACCAACGA TTTCATTC 2872 5273 AUGAAAAU G CAGUCCUC 1171 CAGGACTG GGCTACCAACGA TTCCATC 28873 5282 AAAAUGCA G UCCUGAGG 1172 CCTCAGGA GGCTACCAACGA TCCACTTT 2874 5294 UGAGGAGA G UUUUCUCC 1173 GGAGAAAA GGCTACCAACGA TCCACCA ATGGAAAA 2876 5305 UUCUCCAU A UCAAAAC 1175 CGTTTTAG GGCTACCAACGA ATGGAAAA 2876 5311 AUAUCAAA A CGAGGGA 1177 TCCATCAG GGCTACCAACGA CAGCCTCTTT 2878 5321 AGAGG		UUGGUAUU A UUCUGUUU		AAACAGAA GGCTAGCTACAACGA AATACCAA	2863
5241 UGUUUUGC A CAGUUAGU 1164 ACTAACTG GGCTAGCTACAACGA GCAAAACA 2866 5244 UUUGCACA G UUAGUUGU 1165 ACAACTAA GGCTAGCTACAACGA TGTGCAAA 2867 5248 CACAGUUA G UUGUAAAA 1166 TTTCACAA GGCTAGCTACAACGA TAACTGTG 2868 5251 AGUUAGUU G UGAAAAGAA 1167 TTCTTTCA GGCTAGCTACAACGA AACTAACT 2869 5261 GAAAGAAA G CUGAGAAG 1168 CTTCTCAG GGCTAGCTACAACGA TTTCTTC 2870 5271 UGAGAAGA A UGAAADUG 1169 CATTTTCA GGCTAGCTACAACGA TTTCATTC 2871 5277 GAAUGAAA A UGCAGUCC 1170 GGACTGC GGCTAGCTACAACGA TTTCATTC 2872 5279 AUGAAAAU G CAGUCCUG 1171 CAGGACTG GGCTAGCTACAACGA ATTTCAT 2873 5282 AAAAUGCA G UCCUGAGG 1172 CCTCAGGA GGCTAGCTACAACGA ATTCCTCA 2875 5303 UUUUUCCA UAUCAAAAA 1174 TTTTGATA GGCTAGCTACAACGA ATGGAGAA 2876 5311 AUACAAAA 1175 CGTTTTTGA GGCTAGCTACAACGA ATGGAGAA 2877 5317 AAACGAGG G CUGAUGGA 1177 TCCATCAG GGCTAGCTACAACGA CTCCTGTTT	5234	AUUAUUCU G UUUUGCAC	1162	GTGCAAAA GGCTAGCTACAACGA AGAATAAT	2864
5244 UUUGCACA G UUAGUUGU 1165 ACAACTAA GGCTAGCTACAACGA TGTGCAAA 2867 5248 CACAGUUA G UUGUGAAA 1166 TTTCACAA GGCTAGCTACAACGA TAACTGTG 2868 5251 AGUUAGUU G UGAAAGAA 1167 TTCTTTCA GGCTAGCTACAACGA AACTAACT 2869 5261 GAAAGAAA G CUGAGAAG 1169 CTTTCTCA GGCTAGCTACAACGA TTTCTTC 2870 5271 UGAGAAGA A UGAAAUGC 1170 GGACTGC GGCTAGCTACAACGA TCTTCTCA 2871 5277 GAAUGAAA A UGCAGUCC 1171 CAGGACTG GGCTAGCTACAACGA TTTCATCA 2872 5279 AUGAAAAU G CAGUCCUG 1171 CAGGACTG GGCTAGCTACAACGA ATTTCAT 2872 5282 AAAAUGCA G UCCUGAGG 1172 CCTCAGGA GGCTAGCTACAACGA TCTCCTCA 2875 5303 UUUUCUCC A UAUCAAAA 1174 TTTTGATA GGCTAGCTACAACGA ATGGAAAA 2876 5311 AUAUCAAA 1175 CGTTTTGA GGCTAGCTACAACGA ATGGAAAAAAAAAAA	5239	UCUGUUUU G CACAGUUA	1163	TAACTGTG GGCTAGCTACAACGA AAAACAGA	2865
5248 CACAGUUA G UUGUGAAA 1166 TTTCACAA GGCTAGCTACAACGA TAACTGTG 2868 5251 AGUUAGUU G UGAAAGAA 1167 TTCTTTCA GGCTAGCTACAACGA AACTAACT 2869 5261 GAAAGAAA G CUGAGAAG 1168 CTTCTCAG GGCTAGCTACAACGA AACTAACT 2870 5271 UGAGAAGA A UGAAAAUG 1169 CATTTCA GGCTAGCTACAACGA TCTCTCCA 2871 5277 GAAUGAAA A UGCAGUCC 1170 GGACTGCA GGCTAGCTACAACGA TTTCATTC 2872 5282 AAAAUGCA G UCCUGAGG 1171 CCCTCAGGA GGCTAGCTACAACGA TTTCATTC 2873 5282 AAAAUGCA G UCCUGAGG 1172 CCTCAGGA GGCTAGCTACAACGA TTCCTCCA 2875 5303 UUUUCUCC A UAUCAAAA 1174 TTTTGATA GGCTAGCTACAACGA TTTGATT 2875 5311 AUAUCAAA 1175 CGTTTTGA GGCTAGCTACAACGA ATGGAGAA 2877 5311 AUAUCAAA 1175 CGTTTTGA GGCTAGCTACAACGA CTCCTCT 2879 5321 GAGGGGA 1177 TCCATCAG GGCTAGCTACAACGA CTCCTTT 2879 5321 GAGGGGGA 1177 TCCATCAG GGCTAGCTACAACGA CTCTCTTC 2880	5241	UGUUUUGC A CAGUUAGU	1164	ACTAACTG GGCTAGCTACAACGA GCAAAACA	2866
5251 AGUUAGUU G UGARAGAA 1167 TTCTTTCA GGCTAGCTACAACGA AACTAACT 2869 5261 GAAAGAAA G CUGAGAAG 1168 CTTCTCAG GGCTAGCTACAACGA TTTCTTC 2870 5271 UGAGAAGA A UGAAAAUG 1169 CATTTTCA GGCTAGCTACAACGA TCTTCTCA 2871 5277 GAAUGAAA A UGCAGUCC 1170 GGACTGCA GGCTAGCTACAACGA TTTCATTC 2872 5279 AUGAAAAU G CAGUCCUG 1171 CAGGACTAGGACGA GGCTAGCTACAACGA ATTTCATC 2873 5282 AAAAUGCA G UCCUGAGG 1172 CCTCAGGA GGCTAGCTACAACGA TCTCCTCA 2875 5303 UUUUCUCC A UAUCAAAA 1174 TTTTGATA GGCTAGCTACAACGA TCTCCTCA 2875 5303 UUUUCUCC A UAUCAAAA 1175 CGTTTTGA GGCTAGCTACAACGA ATGGAAA 2876 5311 AUAUCAAA A CGAGGGCU 1175 AGCCCTCG GGCTAGCTACAACGA TTTGATAT 2878 5317 AAACGAGG G CUGAUGGA 1177 TCCATCAG GGCTAGCTACAACGA CTCCTCT 2880 5334 GGAAAAAG G UCAAUAAG 1179 CTTATTGA GGCTAGCTACAACGA CTTCTTCC 2881 5338 AAAGGUCA A UAAGGUCA 1180 TGACCTTG GGCTAGCTACAACGA CTTCCTT <td>5244</td> <td>UUUGCACA G UUAGUUGU</td> <td>1165</td> <td>ACAACTAA GGCTAGCTACAACGA TGTGCAAA</td> <td>2867</td>	5244	UUUGCACA G UUAGUUGU	1165	ACAACTAA GGCTAGCTACAACGA TGTGCAAA	2867
5261 GAAAGAAA G CUGAGAAG 1168 CTTCTCAG GGCTAGCTACAACGA TTTCTTC 2870 5271 UGAGAAGA A UGAAAAUG 1169 CATTTCA GGCTAGCTACAACGA TCTTCTCA 2871 5277 GAAUGAAA A UGCAGUCC 1170 GGACTGC GGCTAGCACACGA TTTCATTC 2872 5279 AUGAAAAU G CAGUCCUG 1171 CAGGACTG GGCTACCACACGA ATTTCAT 2873 5282 AAAAUGCA G UCCUGAGG 1172 CCTCAGGA GGCTACCACACGA TGCATTT 2874 5294 UGAGGAGA G UUUUCUCC 1173 GGAGAAAA GGCTACCACACGA TCCCCCA 2875 5303 UUUUCUCC A UAUCAAAA 1174 TTTTGATA GGCTACCACGA GGAGAAAA 2876 5305 UUCUCCAU A UCAAAACG 1175 CGTTTTGAT 2878 5311 AIAUCAAA A CGAGGGCU 1176 AGCCCTCG GGCTAGCTACAACGA CTTGATAT 2879 5321 GAGGGCUG A UGGAGGA 1177 TCCATCAG GGCTACCAACGA CTTTTCC 2880 5334 GGAAAAAG GUCAUAGA 1179 CTTATTGA GGCTACCAACGA CTTTTTCC 2881 5338 AAAGGUCA A UAAGGGA 1180 TGACCTTA GGCTACCAACGA CTTTTTCA 2882	5248	CACAGUUA G UUGUGAAA	1166	TTTCACAA GGCTAGCTACAACGA TAACTGTG	2868
5271 UGAGAAGA A UGAAAAUG 1169 CATTTTCA GGCTAGCTACAACGA TCTTCTCA 2871 5277 GAAUGAAA A UGCAGUCC 1170 GGACTGCA GGCTAGCTACAACGA TTTCATTC 2872 5279 AUGAAAAU G CAGUCCUG 1171 CAGGACTG GGCTAGCTACAACGA ATTTCAT 2873 5282 AAAAUGCA G UCCUGAGG 1172 CCTCAGGA GGCTAGCTACAACGA TGCATTT 2874 5294 UGAGGAGA G UUUUCUCC 1173 GGAGAAAA GGCTAGCTACAACGA TCTCCTCA 2875 5303 UUUUCUCC A UAUCAAAA 1174 TTTTGATA GGCTAGCTACAACGA GGAGAAAA 2876 5305 UUCUCCAU A UCAAAACG 1175 CGTTTTGA GGCTAGCTACAACGA ATGGAGAA 2877 5311 AUAUCAAA 1176 AGCCCTCG GGCTAGCTACAACGA TTTGATAT 2878 5317 AAACGAGG G CUGAUGGA 1177 TCCATCAG GGCTAGCTACAACGA CTCTCTT 2879 5321 GAGGGCUG A UGGAGGAA 1179 CTTATTGA GGCTAGCTACAACGA CTTTTTCC 2881 5334 GGAAAAAG G UCAAGGGA 1180 TGACCTTA GGCTAGCTACAACGA CTTTTCC 2882 5343 UCAAIAAG G UCAAGGGA 1181 TCCCTTGA GGCTAGCTACAACGA CTTTCCCTT 28	5251	AGUUAGUU G UGAAAGAA	1167	TTCTTTCA GGCTAGCTACAACGA AACTAACT	2869
5277 GAAUGAAA A UGCAGUCC 1170 GGACTGCA GGCTAGCTACAACGA TTTCATTC 2672 5279 AUGAAAAU G CAGUCCUG 1171 CAGGACTG GGCTAGCTACAACGA ATTTCAT 2673 5282 AAAAUGCA G UCCUGAGG 1172 CCTCAGGA GGCTAGCTACAACGA TGCATTT 2874 5294 UGAGGAGA G UUUUCUCC 1173 GGAGAAAA GGCTAGCTACAACGA TCTCCTCA 2675 5303 UUUUCUCC A UAUCAAAA 1174 TTTTGATA GGCTAGCTACAACGA GGAGAAAA 2676 5305 UUCUCCAU A UCAAAACG 1175 CGTTTTGA GGCTAGCTACAACGA GGAGAAAA 2677 5311 AUAUCAAA A CGAGGGCU 1176 AGCCCTCG GGCTAGCTACAACGA ATGGAGAA 2677 5311 AUAUCAAA A CGAGGGCU 1176 AGCCCTCG GGCTAGCTACAACGA CTTGATAT 2679 5321 GAGGGCUG A UGGAGGAA 1177 TCCATCAG GGCTAGCTACAACGA CTCGTTT 2679 5321 GAGGGCUG A UGGAGGAA 1178 TTCCTCCA GGCTAGCTACAACGA CTCGTTT 2679 5321 GAGGGCUG A UGGAGGAA 1179 CTTATTGA GGCTAGCTACAACGA CTTTTTCC 2681 5334 GGAAAAAG G UCAAUAAG 1179 CTTATTGA GGCTAGCTACAACGA CTTTTTCC 2681 5338 AAAGGUCA A UAAGGUCA 1180 TGACCTTA GGCTAGCTACAACGA CTTTTTCC 2681 5343 UCAAUAAG G UCAAGGGA 1181 TCCCTTGA GGCTAGCTACAACGA CTTATTGA 2682 5343 UCAAUAAG G UCAAGGGA 1181 TCCCTTGA GGCTAGCTACAACGA CTTCCCTT 2684 5354 AAGGGAAG A CCCCGUCU 1182 AGACGGGG GGCTAGCTACAACGA CTTCCCTT 2684 5359 AAGACCCC G UCUCUAUA 1183 TATAGAGA GGCTAGCTACAACGA CTTCCCTT 2685 5365 CCGUCUCU A UACCAACC 1184 GGTTGGTA GGCTAGCTACAACGA AGAGACCG 2686 5367 GUCUCUAU A CCAACCAA 1185 TTGGTTGG GGCTAGCTACAACGA AGAGACCG 2686 5367 GUCUCUAU A CCAACCAA 1186 TGGTTGG GGCTAGCTACAACGA TGGTATAG 2688 5371 CUAUACCA A CCAACCAA 1186 TGGTTGG GGCTAGCTACAACGA TGGTATAG 2689 5360 CCAACCAA A CCAACCAA 1186 TGGTTGG GGCTAGCTACAACGA TGGTTAG 2689 5361 CCAACCAA A CCAACCAA 1187 TGAATTGG GGCTAGCTACAACGA TGGTTAG 2689 5362 CCAACCAA A CCAACCAA 1186 TGGTTGG GGCTAGCTACAACGA TGGTTAG 2689 5363 CCAACCAA A CCCAACCAA 1187 TGAATTGG GGCTAGCTACAACGA TGGTTAG 2689 5364 ACCAAUUC A CCAACCAA 1189 TGTGTTGG GGCTAGCTACAACGA TGGTTAG 2689 5368 AUUCACCAA CAACGUGG 1190 CAACTGT GGCTAGCTACAACGA GGATTGGT 2689 5360 CCAACCAA CAACGUGG 1190 CAACTGT GGCTAGCTACAACGA GGTTGGTAAC 2692	5261	GAAAGAAA G CUGAGAAG	1168	CTTCTCAG GGCTAGCTACAACGA TTTCTTTC	2870
5279 AUGAAAAU G CAGUCCUG 1171 CAGGACTG GGCTAGCTACAACGA ATTTCAT 2873 5282 AAAAUGCA G UCCUGAGG 1172 CCTCAGGA GGCTAGCTACAACGA TGCATTT 2874 5294 UGAGGAGA G UUUUCUCC 1173 GGAGAAAA GGCTAGCTACAACGA TCCCTCA 2875 5303 UUUUCUCC A UAUCAAAA 1174 TTTTGATA GGCTAGCTACAACGA GGAGAAAA 2876 5305 UUCUCCAU A UCAAAACG 1175 CGTTTTGA GGCTAGCTACAACGA ATGGAGAA 2877 5311 AUAUCAAA A CGAGGGCU 1176 AGCCCTCG GGCTAGCTACAACGA TTTGATAT 2878 5317 AAACGAGG G CUGAUGGA 1177 TCCATCAG GGCTAGCTACAACGA CCTCGTT 2879 5321 GAGGGCUG A UGGAGGAA 1178 TTCCTCCA GGCTAGCTACAACGA CTGCTTT 2880 5334 GGAAAAAG G UCAAUAAG 1179 CTTATTGA GGCTACAACGA CTTTTTCC 2881 5338 AAAGGUCA A UAAGGUCA 1180 TGACCTTA GGCTACAACGA CTTATTGA 2882 5343 UCAAUAAG G UCAAGGGA 1181 TCCCTTGA GGCTACAACGA CTTCCCTT 2884 5354 AAGGGAAG A CCCCGUCU 1182 AGACGGGG GGCTAGCTACACGA GGGGTCTT 2885 </td <td>5271</td> <td>UGAGAAGA A UGAAAAUG</td> <td>1169</td> <td>CATTITCA GGCTAGCTACAACGA TCTTCTCA</td> <td>2871</td>	5271	UGAGAAGA A UGAAAAUG	1169	CATTITCA GGCTAGCTACAACGA TCTTCTCA	2871
5282 AAAAUGCA G UCCUGAGG 1172 CCTCAGGA GGCTAGCTACAACGA TGCATTTT 2874 5294 UGAGGAGA G UUUUCUCC 1173 GGAGAAAA GGCTAGCTACAACGA TCTCCTCA 2875 5303 UUUUCUCC A UAUCAAAA 1174 TTTTGATA GGCTAGCTACAACGA GGAGAAAA 2876 5305 UUCUCCAU A UCCAAAACG 1175 CGTTTTGA GGCTAGCTACAACGA GGAGAAAA 2877 5311 AUAUCAAA A CGAGGGCU 1176 AGCCCTCG GGCTAGCTACAACGA ATGGAGAA 2877 5317 AAACGAGG G CUGAUGGA 1177 TCCATCAG GGCTAGCTACAACGA CTCCGTTT 2879 5321 GAGGGCUG A UGGAGGAA 1178 TTCCTCCA GGCTAGCTACAACGA CCTCGTTT 2879 5321 GAGGGCUG A UGGAGGAA 1179 CTTATTGA GGCTAGCTACAACGA CTTTTTCC 2881 5334 GGAAAAAG G UCAAUAAG 1179 CTTATTGA GGCTAGCTACAACGA CTTTTTCC 2881 5338 AAAGGUCA A UAAGGUCA 1180 TGACCTTA GGCTAGCTACAACGA CTTTTTCC 2882 5343 UCAAUAAG G UCAAGGGA 1181 TCCCTTGA GGCTAGCTACAACGA CTTCTTT 2882 5344 AAGGGAAG A CCACGUCU 1182 AGACGGGG GGCTAGCTACAACGA CTTCCCTT 2884 5359 AAGACCCC G UCUCUAUA 1183 TATAGAGA GGCTAGCTACAACGA CTTCCCTT 2884 5359 AAGACCCC G UCUCUAUA 1183 TATAGAGA GGCTAGCTACAACGA GGGGTCTT 2885 5365 CCGUCUCU A UACCAACC 1184 GGTTGGTA GGCTAGCTACAACGA AGAGACCG 2886 5367 GUCUCUAA CCAACCAA 1185 TTGGTTGG GGCTAGCTACAACGA ATAGAGAC 2887 5371 CUAUACCA A CCAACCAA 1186 TGGTTTGG GGCTAGCTACAACGA TGGTATAG 2888 5376 CCAACCAA A CCAAUCA 1187 TGAATTGG GGCTAGCTACAACGA TGGTTTGG 2889 5380 CCAAACCA A UUCACCAA 1189 TGGTTGG GGCTAGCTACAACGA TGGTTTGG 2889 5384 ACCAAUUC A CCAACCAA 1189 TGTGTTGG GGCTAGCTACAACGA TGGTTTGG 2890 5384 ACCAAUUC A CCAACCAA 1189 TGTGTTGG GGCTAGCTACAACGA TGGTTTGG 2890 5388 AUUCACCAA A CACAGUUG 1190 CAACTGT GGCTAGCTACAACGA GAATTGGT 2891 5388 AUUCACCAA A CACAGUUG 1190 CAACTGT GGCTAGCTACAACGA GAATTGGT 2891	5277	GAAUGAAA A UGCAGUCC	1170	GGACTGCA GGCTAGCTACAACGA TTTCATTC	2872
5294 UGAGGAGA G UUUUCUCC 1173 GGAGAAAA GGCTAGCTACAACGA TCTCCTCA 2875 5303 UUUUCUCC A UAUCAAAA 1174 TTTTGATA GGCTAGCTACAACGA GGAGAAAA 2876 5305 UUCUCCAU A UCAAAACG 1175 CGTTTTGA GGCTAGCTACAACGA ATGGAGAA 2877 5311 AUAUCAAA A CGAGGGCU 1176 AGCCCTCG GGCTAGCTACAACGA CTTCGTTT 2879 5317 AAACGAGG G CUGAUGGA 1177 TCCATCAG GGCTAGCTACAACGA CCTCGTTT 2879 5321 GAGGCUG A UGGAGGAA 1178 TTCCTCCA GGCTAGCTACAACGA CTTCTTCC 2880 5334 GGAAAAAG G UCAAUAAG 1179 CTTATTGA GGCTAGCTACAACGA CTTTTTCC 2881 5338 AAAGGUCA A UAAGGGA 1180 TGACCTTA GGCTAGCTACAACGA CTTATTGA 2883 5343 UCAAUAAG G UCAAGGA 1181 TCCCTTGA GGCTAGCTACAACGA CTTACTTA 2882 5343 UCAAUAAG G UCAAGGA 1181 TCCCTTGA GGCTAGCTACAACGA CTTCCCTT 2884 5354 AAGGGAAG A CCCCGUCU 1182 AGACGGG GGCTAGCTACAACGA CTTCCCTT 2884 5359 AAGACCCC G UCUCUAUA 1183 TATAGAGA GGCTAGCTACAACGA AGAGACGG 2886 5365 CCGUCUCU A UACCAACCA 1184 CGTTGGTAGCTACAACGA ATAGAGAC 2887 5371<	5279	AUGAAAAU G CAGUCCUG	1171	CAGGACTG GGCTAGCTACAACGA ATTTTCAT	2873
UUUUCUCC A UAUCAAAA 1174 TTTTGATA GGCTAGCTACAACGA GGAGAAAA 2876 5305 UUCUCCAU A UCAAAACG 1175 CGTTTTGA GGCTAGCTACAACGA ATGGAGAA 2877 5311 AUAUCAAA A CGAGGGCU 1176 AGCCCTCG GGCTAGCTACAACGA TTTGATAT 2878 5317 AAACGAGG G CUGAUGGA 1177 TCCATCAG GGCTAGCTACAACGA CCTCGTTT 2879 5321 GAGGGCUG A UGGAGGAA 1178 TTCCTCCA GGCTAGCTACAACGA CAGCCCTC 2880 5334 GGAAAAAG G UCAAUAAG 1179 CTTATTGA GGCTAGCTACAACGA CTTTTTCC 2881 5338 AAAGGUCA A UAAGGUCA 1180 TGACCTTA GGCTAGCTACAACGA CTTATTGA 2883 5343 UCAAUAAG G UCAAGGGA 1181 TCCCTTGA GGCTAGCTACAACGA CTTATTGA 2883 5354 AAGGGAAG A CCCCGUCU 1182 AGACGGGG GGCTAGCTACAACGA CTTCCCTT 2884 5359 AAGACCCC G UCUCUAUA 1183 TATAGAGA GGCTAGCTACAACGA CTTCCCTT 2885 5365 CCGUCUCU A UACCAACC 1184 GGTTGGTA GGCTAGCTACAACGA AGAGACCG 2886 5367 GUCUCUAU A CCAACCAA 1185 TTGGTTGG GGCTAGCTACAACGA ATAGAGAC 2887 5371 CUAUACCA A CCAAACCA 1186 TGGTTTGG GGCTAGCTACAACGA TGGTATAG 2888 5376 CCAACCAA A CCAAACCA 1187 TGAATTGG GGCTAGCTACAACGA TGGTTAG 2889 5380 CCAAACCA A UUCACCAA 1189 TGGTTGG GGCTAGCTACAACGA TGGTTTGG 2890 5384 ACCAAUUC A CCAACCAA 1189 TGGTTGG GGCTAGCTACAACGA GAATTGGT 2891 5388 AUUCACCA A CACACCA 1189 TGTGTTGG GGCTAGCTACAACGA TGGTTTGG 2890 5380 UCACCAAC A CACAGGUG 1190 CAACTGTG GGCTAGCTACAACGA TGGTGAAT 2892 5390 UCACCAAC A CAGGUGG 1191 CCCAACTG GGCTAGCTACAACGA GTTGGTGAA 2893	5282	AAAAUGCA G UCCUGAGG	1172	CCTCAGGA GGCTAGCTACAACGA TGCATTTT	2874
UUCUCCAU A UCAAAACG 1175 CGTTTTGA GGCTAGCTACAACGA ATGGAGAA 2877 5311 AUAUCAAA A CGAGGGCU 1176 AGCCCTCG GGCTAGCTACAACGA TTTGATAT 2878 5317 AAACGAGG G CUGAUGGA 1177 TCCATCAG GGCTAGCTACAACGA CCTCGTTT 2879 5321 GAGGGCUG A UGGAGGAA 1178 TTCCTCCA GGCTAGCTACAACGA CAGCCTC 2880 5334 GGAAAAAG G UCAAUAAG 1179 CTTATTGA GGCTAGCTACAACGA CTTTTTCC 2881 5338 AAAGGUCA A UAAGGUCA 1180 TGACCTTA GGCTAGCTACAACGA CTTATTGA 2882 5343 UCAAUAAG G UCAAGGGA 1181 TCCCTTGA GGCTAGCTACAACGA CTTATTGA 2883 5354 AAGGGAAG A CCCCGUCU 1182 AGACGGGG GGCTAGCTACAACGA CTTCCCTT 2884 5359 AAGACCCC G UCUCUAUA 1183 TATAGAGA GGCTAGCTACAACGA GGGTTCT 2885 5365 CCGUCUCU A UACCAACC 1184 GGTTGGTA GGCTAGCTACAACGA AGAGACGG 2886 5367 GUCUCUAU A CCAACCAA 1185 TTGGTTGG GGCTAGCTACAACGA ATAGAGAC 2887 5371 CUAUACCA A CCAAACCA 1186 TGGTTTGG GGCTAGCTACAACGA TGGTTATAG 2888 5376 CCAACCAA A CCAAUCA 1187 TGAATTGG GGCTAGCTACAACGA TGGTTTGG 2889 5380 CCAAACCA A UUCACCAA 1188 TTGGTTGG GGCTAGCTACAACGA TGGTTTGG 2890 5384 ACCAAUUC A CCAACACA 1189 TGTGTTGG GGCTAGCTACAACGA GAATTGGT 2891 5388 AUUCACCAA CACAGUUG 1190 CAACTGTG GGCTAGCTACAACGA TGGTTAGT 2892 5390 UCACCAAC A CACGUUGG 1191 CCCAACTG GGCTAGCTACAACGA GTTGGTGA 2893	5294	UGAGGAGA G UUUUCUCC	1173	GGAGAAAA GGCTAGCTACAACGA TCTCCTCA	2875
5311 AUAUCAAA A CGAGGGCU 1176 AGCCCTCG GGCTAGCTACAACGA TTTGATAT 2878 5317 AAACGAGG G CUGAUGGA 1177 TCCATCAG GGCTAGCTACAACGA CCTCGTTT 2879 5321 GAGGGCUG A UGGAGGAA 1178 TTCCTCCA GGCTAGCTACAACGA CAGCCCTC 2880 5334 GGAAAAAG G UCAAUAAG 1179 CTTATTGA GGCTAGCTACAACGA CTTTTTCC 2881 5338 AAAGGUCA A UAAGGUCA 1180 TGACCTTA GGCTAGCTACAACGA TGACCTTT 2882 5343 UCAAUAAG G UCAAGGGA 1181 TCCCTTGA GGCTAGCTACAACGA CTTATTGA 2883 5354 AAGGGAAG A CCCCGUCU 1182 AGACGGGG GGCTAGCTACAACGA CTTCCCTT 2884 5359 AAGACCCC G UCUCUAUA 1183 TATAGAGA GGCTAGCTACAACGA GGGGTCTT 2885 5365 CCGUCUCU A UACCAACC 1184 GGTTGGTA GGCTAGCTACAACGA AGAGACGG 2886 5367 GUCUCUAU A CCAACCAA 1185 TTGGTTGG GGCTAGCTACAACGA ATAGAGAC 2887 5371 CUAUACCA A CCAAACCA 1186 TGGTTTGG GGCTAGCTACAACGA TGGTTAGA 2888 5376 CCAACCAA A CCAAUUCA 1187 TGAATTGG GGCTAGCTACAACGA TGGTTAGG 2889 5380 CCAAACCA A UUCACCAA 1188 TTGGTGAA GGCTAGCTACAACGA TGGTTTGG 2890 5384 ACCAAUUC A CCAACCAC 1189 TGTGTTGG GGCTAGCTACAACGA GAATTGGT 2891 5388 AUUCACCA A CACAGUUG 1190 CAACTGTG GGCTAGCTACAACGA TGGTTTGG 2892 5390 UCACCAAC A CAGGUUG 1191 CCCAACTG GGCTAGCTACAACGA TGGTGAAT 2892	5303	UUUUCUCC A UAUCAAAA	1174	TTTTGATA GGCTAGCTACAACGA GGAGAAAA	2876
5317 AAACGAGG G CUGAUGGA 1177 TCCATCAG GGCTAGCTACAACGA CCTCGTTT 2879 5321 GAGGGCUG A UGGAGGAA 1178 TTCCTCCA GGCTAGCTACAACGA CAGCCCTC 2880 5334 GGAAAAAG G UCAAUAAG 1179 CTTATTGA GGCTAGCTACAACGA CTTTTTCC 2881 5338 AAAGGUCA A UAAGGUCA 1180 TGACCTTA GGCTAGCTACAACGA TGACCTTT 2882 5343 UCAAUAAG G UCAAGGGA 1181 TCCCTTGA GGCTAGCTACAACGA CTTATTGA 2883 5354 AAGGGAAG A CCCCGUCU 1182 AGACGGGG GGCTAGCTACAACGA CTTCCCTT 2884 5359 AAGACCCC G UCUCUAUA 1183 TATAGAGA GGCTAGCTACAACGA GGGGTCTT 2885 5365 CCGUCUCU A UACCAACC 1184 GGTTGGTA GGCTAGCTACAACGA AGAGACGG 2886 5367 GUCUCUAU A CCAACCAA 1185 TTGGTTGG GGCTAGCTACAACGA ATAGAGAC 2887 5371 CUAUACCA A CCAAACCA 1186 TGGTTTGG GGCTAGCTACAACGA TGGTATAG 2888 5376 CCAACCAA A CCAAUUCA 1187 TGAATTGG GGCTAGCTACAACGA TGGTTAGG 2889 5380 CCAAACCA A UUCACCAA 1188 TTGGTGGA GGCTAGCTACAACGA TGGTTTGG 2890 5384 ACCAAUUC A CCAACACA 1189 TGTGTTGG GGCTAGCTACAACGA GAATTGGT 2891 5388 AUUCACCA A CACAGUUG 1190 CAACTGTG GGCTAGCTACAACGA TGGTTAGA 2892 5390 UCACCAAC A CAGGUUGG 1191 CCCAACTG GGCTAGCTACAACGA GTTGGTGA 2893	5305	UUCUCCAU A UCAAAACG	1175	CGTTTTGA GGCTAGCTACAACGA ATGGAGAA	2877
GAGGGCUG A UGGAGGAA 1178 TTCCTCCA GGCTAGCTACAACGA CAGCCCTC 2880 5334 GGAAAAAG G UCAAUAAG 1179 CTTATTGA GGCTAGCTACAACGA CTTTTTCC 2881 5338 AAAGGUCA A UAAGGUCA 1180 TGACCTTA GGCTAGCTACAACGA TGACCTTT 2882 5343 UCAAUAAG G UCAAGGGA 1181 TCCCTTGA GGCTAGCTACAACGA CTTATTGA 2883 5354 AAGGGAAG A CCCCGUCU 1182 AGACGGGG GGCTAGCTACAACGA CTTCCCTT 2884 5359 AAGACCCC G UCUCUAUA 1183 TATAGAGA GGCTAGCTACAACGA GGGGTCTT 2885 5365 CCGUCUCU A UACCAACC 1184 GGTTGGTA GGCTAGCTACAACGA AGAGACCG 2886 5367 GUCUCUAU A CCAACCAA 1185 TTGGTTGG GGCTAGCTACAACGA ATAGAGAC 2887 5371 CUAUACCA A CCAAACCA 1186 TGGTTTGG GGCTAGCTACAACGA TGGTATAG 2888 5376 CCAACCAA A CCAAUUCA 1187 TGAATTGG GGCTAGCTACAACGA TGGTATAG 2889 5380 CCAAACCA A UUCACCAA 1188 TTGGTGAA GGCTAGCTACAACGA TGGTTTGG 2890 5384 ACCAAUUC A CCAACACA 1189 TGTGTTGG GGCTAGCTACAACGA GAATTGGT 2891 5388 AUUCACCA A CACAGUUG 1190 CAACTGTG GGCTAGCTACAACGA TGGTGAAT 2892 5390 UCACCAAC A CAGGUUGG 1191 CCCAACTG GGCTAGCTACAACGA GTTGGTGA 2893	5311	AUAUCAAA A CGAGGGCU	1176	AGCCCTCG GGCTAGCTACAACGA TTTGATAT	2878
GGAAAAAG G UCAAUAAG 1179 CTTATTGA GGCTAGCTACAACGA CTTTTTCC 2881 5338 AAAGGUCA A UAAGGUCA 1180 TGACCTTA GGCTAGCTACAACGA TGACCTTT 2882 5343 UCAAUAAG G UCAAGGA 1181 TCCCTTGA GGCTAGCTACAACGA CTTATTGA 2883 5354 AAGGGAAG A CCCCGUCU 1182 AGACGGG GGCTAGCTACAACGA CTTCCCTT 2884 5359 AAGACCCC G UCUCUAUA 1183 TATAGAGA GGCTAGCTACAACGA GGGGTCTT 2885 5365 CCGUCUCU A UACCAACC 1184 GGTTGGTA GGCTAGCTACAACGA AGAGACGG 2886 5367 GUCUCUAU A CCAACCAA 1185 TTGGTTGG GGCTAGCTACAACGA ATAGAGAC 2887 5371 CUAUACCA A CCAAACCA 1186 TGGTTTGG GGCTAGCTACAACGA TGGTATAG 2888 5376 CCAACCAA A CCAAUUCA 1187 TGAATTGG GGCTAGCTACAACGA TTGGTTGG 2889 5380 CCAAACCA A UUCACCAA 1188 TTGGTGAA GGCTAGCTACAACGA TGGTTTGG 2890 5384 ACCAAUUC A CCAACACA 1189 TGTGTTGG GGCTAGCTACAACGA GAATTGGT 2891 5388 AUUCACCA A CACAGUUG 1190 CAACTGTG GGCTAGCTACAACGA TGGTGAAT 2892 5390 UCACCAAC A CAGGUUGG 1191 CCCAACTG GGCTAGCTACAACGA GTTGGTGA 2893	—				2879
5338 AAAGGUCA A UAAGGUCA 1180 TGACCTTA GGCTAGCTACAACGA TGACCTTT 2882 5343 UCAAUAAG G UCAAGGA 1181 TCCCTTGA GGCTAGCTACAACGA CTTATTGA 2883 5354 AAGGGAAG A CCCCGUCU 1182 AGACGGGG GGCTAGCTACAACGA CTTCCCTT 2884 5359 AAGACCCC G UCUCUAUA 1183 TATAGAGA GGCTAGCTACAACGA GGGGTCTT 2885 5365 CCGUCUCU A UACCAACC 1184 GGTTGGTA GGCTAGCTACAACGA AGAGACGG 2886 5367 GUCUCUAU A CCAACCAA 1185 TTGGTTGG GGCTAGCTACAACGA ATAGAGAC 2887 5371 CUAUACCA A CCAAACCA 1186 TGGTTTGG GGCTAGCTACAACGA TGGTATAG 2888 5376 CCAACCAA A CCAAUUCA 1187 TGAATTGG GGCTAGCTACAACGA TTGGTTGG 2889 5380 CCAAACCA A UUCACCAA 1188 TTGGTGAA GGCTAGCTACAACGA TGGTTTGG 2890 5384 ACCAAUUC A CCAACACA 1189 TGTGTTGG GGCTAGCTACAACGA TGGTTTGG 2891 5388 AUUCACCAA A CACAGUUG 1190 CAACTGTG GGCTAGCTACAACGA TGGTGAAT 2892 5390 UCACCAAC A CAGGUUGG 1191 CCCAACTG GGCTAGCTACAACGA GTTGGTGA 2893		GAGGGCUG A UGGAGGAA		TTCCTCCA GGCTAGCTACAACGA CAGCCCTC	2880
UCAAUAG G UCAAGGA 1181 TCCCTTGA GGCTAGCTACAACGA CTTATTGA 2883 5354 AAGGGAAG A CCCCGUCU 1182 AGACGGG GGCTAGCTACAACGA CTTCCCTT 2884 5359 AAGACCCC G UCUCUAUA 1183 TATAGAGA GGCTAGCTACAACGA GGGGTCTT 2885 5365 CCGUCUCU A UACCAACC 1184 GGTTGGTA GGCTAGCTACAACGA AGAGACGG 2886 5367 GUCUCUAU A CCAACCAA 1185 TTGGTTGG GGCTAGCTACAACGA ATAGAGAC 2887 5371 CUAUACCA A CCAAACCA 1186 TGGTTTGG GGCTAGCTACAACGA TGGTATAG 2888 5376 CCAACCAA A CCAAUUCA 1187 TGAATTGG GGCTAGCTACAACGA TTGGTTGG 2889 5380 CCAAACCA A UUCACCAA 1188 TTGGTGAA GGCTAGCTACAACGA TGGTTTGG 2890 5384 ACCAAUUC A CCAACACA 1189 TGTGTTGG GGCTAGCTACAACGA GAATTGGT 2891 5388 AUUCACCA A CACAGUUG 1190 CAACTGTG GGCTAGCTACAACGA TGGTGAAT 2892 5390 UCACCAAC A CAGGUUGG 1191 CCCAACTG GGCTAGCTACAACGA GTTGGTGA 2893		GGAAAAAG G UCAAUAAG	1179	CTTATTGA GGCTAGCTACAACGA CTTTTTCC	2881
AGACGGGG GGCTAGCTACAACGA CTTCCCTT 2884 5359 AAGACCCC G UCUCUAUA 1183 TATAGAGA GGCTAGCTACAACGA CTTCCCTT 2885 5365 CCGUCUCU A UACCAACC 1184 GGTTGGTA GGCTAGCTACAACGA AGAGACGG 2886 5367 GUCUCUAU A CCAACCAA 1185 TTGGTTGG GGCTAGCTACAACGA ATAGAGAC 2887 5371 CUAUACCA A CCAAACCA 1186 TGGTTTGG GGCTAGCTACAACGA TGGTATAG 2888 5376 CCAACCAA A CCAAUUCA 1187 TGAATTGG GGCTAGCTACAACGA TTGGTTGG 2889 5380 CCAAACCA A UUCACCAA 1188 TTGGTGAA GGCTAGCTACAACGA TGGTTTGG 2890 5384 ACCAAUUC A CCAACACA 1189 TGTGTTGG GGCTAGCTACAACGA GAATTGGT 2891 5388 AUUCACCA A CACAGUUG 1190 CAACTGTG GGCTAGCTACAACGA TGGTGAAT 2892 5390 UCACCAAC A CAGGUUGGG 1191 CCCAACTG GGCTAGCTACAACGA GTTGGTGA 2893	ļ	AAAGGUCA A UAAGGUCA	1180	TGACCTTA GGCTAGCTACAACGA TGACCTTT	2882
5359 AAGACCCC G UCUCUAUA 1183 TATAGAGA GGCTAGCTACAACGA GGGGTCTT 2885 5365 CCGUCUCU A UACCAACC 1184 GGTTGGTA GGCTAGCTACAACGA AGAGACGG 2886 5367 GUCUCUAU A CCAACCAA 1185 TTGGTTGG GGCTAGCTACAACGA ATAGAGAC 2887 5371 CUAUACCA A CCAAACCA 1186 TGGTTTGG GGCTAGCTACAACGA TGGTATAG 2888 5376 CCAACCAA A CCAAUUCA 1187 TGAATTGG GGCTAGCTACAACGA TTGGTTGG 2889 5380 CCAAACCA A UUCACCAA 1188 TTGGTGAA GGCTAGCTACAACGA TGGTTTGG 2890 5384 ACCAAUUC A CCAACACA 1189 TGTGTTGG GGCTAGCTACAACGA GAATTGGT 2891 5388 AUUCACCA A CACAGUUG 1190 CAACTGTG GGCTAGCTACAACGA TGGTGAAT 2892 5390 UCACCAAC A CAGGUUGGG 1191 CCCAACTG GGCTAGCTACAACGA GTTGGTGA 2893	5343	UCAAUAAG G UCAAGGGA	1181	TCCCTTGA GGCTAGCTACAACGA CTTATTGA	2883
5365 CCGUCUCU A UACCAACC 1184 GGTTGGTA GGCTAGCTACAACGA AGAGACGG 2886 5367 GUCUCUAU A CCAACCAA 1185 TTGGTTGG GGCTAGCTACAACGA ATAGAGAC 2887 5371 CUAUACCA A CCAAACCA 1186 TGGTTTGG GGCTAGCTACAACGA TGGTATAG 2888 5376 CCAACCAA A CCAAUUCA 1187 TGAATTGG GGCTAGCTACAACGA TTGGTTGG 2889 5380 CCAAACCA A UUCACCAA 1188 TTGGTGAA GGCTAGCTACAACGA TGGTTTGG 2890 5384 ACCAAUUC A CCAACACA 1189 TGTGTTGG GGCTAGCTACAACGA GAATTGGT 2891 5388 AUUCACCAA CACAGUUG 1190 CAACTGTG GGCTAGCTACAACGA TGGTGAAT 2892 5390 UCACCAAC A CAGGUUGGG 1191 CCCAACTG GGCTAGCTACAACGA GTTGGTGA 2893	5354	AAGGGAAG A CCCCGUCU	1182	AGACGGGG GGCTAGCTACAACGA CTTCCCTT	2884
5367 GUCUCUAU A CCAACCAA 1185 TTGGTTGG GGCTAGCTACAACGA ATAGAGAC 2887 5371 CUAUACCA A CCAAACCA 1186 TGGTTTGG GGCTAGCTACAACGA TGGTATAG 2888 5376 CCAACCAA A CCAAUUCA 1187 TGAATTGG GGCTAGCTACAACGA TTGGTTGG 2889 5380 CCAAACCA A UUCACCAA 1188 TTGGTGAA GGCTAGCTACAACGA TGGTTTGG 2890 5384 ACCAAUUC A CCAACACA 1189 TGTGTTGG GGCTAGCTACAACGA GAATTGGT 2891 5388 AUUCACCAA CACAGUUG 1190 CAACTGTG GGCTAGCTACAACGA TGGTGAAT 2892 5390 UCACCAAC A CAGGUUGGG 1191 CCCAACTG GGCTAGCTACAACGA GTTGGTGA 2893	5359	AAGACCCC G UCUCUAUA	1183	TATAGAGA GGCTAGCTACAACGA GGGGTCTT	2885
5371 CUAUACCA A CCAAACCA 1186 TGGTTTGG GGCTAGCTACAACGA TGGTATAG 2888 5376 CCAACCAA A CCAAUUCA 1187 TGAATTGG GGCTAGCTACAACGA TTGGTTGG 2889 5380 CCAAACCA A UUCACCAA 1188 TTGGTGAA GGCTAGCTACAACGA TGGTTTGG 2890 5384 ACCAAUUC A CCAACACA 1189 TGTGTTGG GGCTAGCTACAACGA GAATTGGT 2891 5388 AUUCACCA A CACAGUUG 1190 CAACTGTG GGCTAGCTACAACGA TGGTGAAT 2892 5390 UCACCAAC A CAGUUGGG 1191 CCCAACTG GGCTAGCTACAACGA GTTGGTGA 2893	5365	CCGUCUCU A UACCAACC	1184	GGTTGGTA GGCTAGCTACAACGA AGAGACGG	2886
5376 CCAACCAA A CCAAUUCA 1187 TGAATTGG GGCTAGCTACAACGA TTGGTTGG 2889 5380 CCAAACCA A UUCACCAA 1188 TTGGTGAA GGCTAGCTACAACGA TGGTTGG 2890 5384 ACCAAUUC A CCAACACA 1189 TGTGTTGG GGCTAGCTACAACGA GAATTGGT 2891 5388 AUUCACCA A CACAGUUG 1190 CAACTGTG GGCTAGCTACAACGA TGGTGAAT 2892 5390 UCACCAAC A CAGUUGGG 1191 CCCAACTG GGCTAGCTACAACGA GTTGGTGA 2893	5367	GUCUCUAU A CCAACCAA	1185	TTGGTTGG GGCTAGCTACAACGA ATAGAGAC	2887
5380 CCAAACCA A UUCACCAA 1188 TTGGTGAA GGCTAGCTACAACGA TGGTTTGG 2890 5384 ACCAAUUC A CCAACACA 1189 TGTGTTGG GGCTAGCTACAACGA GAATTGGT 2891 5388 AUUCACCA A CACAGUUG 1190 CAACTGTG GGCTAGCTACAACGA TGGTGAAT 2892 5390 UCACCAAC A CAGUUGGG 1191 CCCAACTG GGCTAGCTACAACGA GTTGGTGA 2893	5371		1186	TGGTTTGG GGCTAGCTACAACGA TGGTATAG	2888
5384 ACCAAUUC A CCAACACA 1189 TGTGTTGG GGCTAGCTACAACGA GAATTGGT 2891 5388 AUUCACCA A CACAGUUG 1190 CAACTGTG GGCTAGCTACAACGA TGGTGAAT 2892 5390 UCACCAAC A CAGUUGGG 1191 CCCAACTG GGCTAGCTACAACGA GTTGGTGA 2893	5376	CCAACCAA A CCAAUUCA	1187	TGAATTGG GGCTAGCTACAACGA TTGGTTGG	2889
5388 AUUCACCA A CACAGUUG 1190 CAACTGTG GGCTAGCTACAACGA TGGTGAAT 2892 5390 UCACCAAC A CAGUUGGG 1191 CCCAACTG GGCTAGCTACAACGA GTTGGTGA 2893	5380	CCAAACCA A UUCACCAA	1188	TTGGTGAA GGCTAGCTACAACGA TGGTTTGG	2890
5390 UCACCAAC A CAGUUGGG 1191 CCCAACTG GGCTAGCTACAACGA GTTGGTGA 2893	5384	ACCAAUUC A CCAACACA	1189	TGTGTTGG GGCTAGCTACAACGA GAATTGGT	2891
	5388	AUUCACCA A CACAGUUG	1190	CAACTGTG GGCTAGCTACAACGA TGGTGAAT	2892
E393 CCANCACA C INVECTACE 1192 CCCCCCAA CCCCCAACCCCCAACCCA TCCTCCCCCAA	5390	UCACCAAC A CAGUUGGG	1191	CCCAACTG GGCTAGCTACAACGA GTTGGTGA	2893
3333 COMMENCA G GOODGICC 11132 GOTCCCAA GOCTAGCTACGACGA TOTGTTGG 2894	5393	CCAACACA G UUGGGACC	1192	GGTCCCAA GGCTAGCTACAACGA TGTGTTGG	2894

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5399	CAGUUGGG A CCCAAAAC	1193	GTTTTGGG GGCTAGCTACAACGA CCCAACTG	
5406	GACCCAAA A CACAGGAA	1194	TTCCTGTG GGCTAGCTACAACGA TTTGGGTC	2896
5408	CCCAAAAC A CAGGAAGU	1195	ACTICCTG GGCTAGCTACAACGA GTTTTGGG	2897
5415	CACAGGAA G UCAGUCAC	1196	GTGACTGA GGCTAGCTACAACGA TTCCTGTG	2898
5419	GGAAGUCA G UCACGUUU	1197	AAACGTGA GGCTAGCTACAACGA TGACTTCC	2899
5422	AGUCAGUC A CGUUUCCU	1198	AGGAAACG GGCTAGCTACAACGA GACTGACT	2900
5424	UCAGUCAC G UUUCCUUU	1199	AAAGGAAA GGCTAGCTACAACGA GTGACTGA	2901
5435	UCCUUUUC A UUUAAUGG	1200	CCATTAAA GGCTAGCTACAACGA GAAAAGGA	2902
5440	UUCAUUUA A UGGGGAUU	1201	AATCCCCA GGCTAGCTACAACGA TAAATGAA	2903
5446	UAAUGGGG A UUCCACUA	1202	TAGTGGAA GGCTAGCTACAACGA CCCCATTA	2904
5451	GGGAUUCC A CUAUCUCA	1203	TGAGATAG GGCTAGCTACAACGA GGAATCCC	2905
5454	AUUCCACU A UCUCACAC	1204	GTGTGAGA GGCTAGCTACAACGA AGTGGAAT	2906
5459	ACUAUCUC A CACUAAUC	1205	GATTAGTG GGCTAGCTACAACGA GAGATAGT	2907
5461	UAUCUCAC A CUAAUCUG	1206	CAGATTAG GGCTAGCTACAACGA GTGAGATA	2908
5465	UCACACUA A UCUGAAAG	1207	CTTTCAGA GGCTAGCTACAACGA TAGTGTGA	2909
5475	CUGAAAGG A UGUGGAAG	1208	CTTCCACA GGCTAGCTACAACGA CCTTTCAG	2910
5477	GAAAGGAU G UGGAAGAG	1209	CTCTTCCA GGCTAGCTACAACGA ATCCTTTC	2911
5485	GUGGAAGA G CAUUAGCU	1210	AGCTAATG GGCTAGCTACAACGA TCTTCCAC	2912
5487	GGAAGAGC A UUAGCUGG	1211	CCAGCTAA GGCTAGCTACAACGA GCTCTTCC	2913
5491	GAGCAUUA G CUGGCGCA	1212	TGCGCCAG GGCTAGCTACAACGA TAATGCTC	2914
5495	AUUAGCUG G CGCAUAUU	1213	AATATGCG GGCTAGCTACAACGA CAGCTAAT	2915
5497	UAGCUGGC G CAUAUUAA	1214	TTAATATG GGCTAGCTACAACGA GCCAGCTA	2916
5499	GCUGGCGC A UAUUAAGC	1215	GCTTAATA GGCTAGCTACAACGA GCGCCAGC	2917
5501	UGGCGCAU A UUAAGCAC	1216	GTGCTTAA GGCTAGCTACAACGA ATGCGCCA	2918
5506	CAUAUUAA G CACUUUAA	1217	TTAAAGTG GGCTAGCTACAACGA TTAATATG	2919
5508	UAUUAAGC A CUUUAAGC	1218	GCTTAAAG GGCTAGCTACAACGA GCTTAATA	2920
5515	CACUUUAA G CUCCUUGA	1219	TCAAGGAG GGCTAGCTACAACGA TTAAAGTG	2921
5524	CUCCUUGA G UAAAAAGG	1220	CCTTTTTA GGCTAGCTACAACGA TCAAGGAG	2922
5532	GUAAAAAG G UGGUAUGU	1221	ACATACCA GGCTAGCTACAACGA CTTTTTAC	2923
5535	AAAAGGUG G UAUGUAAU	1222	ATTACATA GGCTAGCTACAACGA CACCTTTT	2924
5537	AAGGUGGU A UGUAAUUU	1223	AAATTACA GGCTAGCTACAACGA ACCACCTT	2925
5539	GGUGGUAU G UAAUUUAU	1224	ATAAATTA GGCTAGCTACAACGA ATACCACC	2926
5542	GGUAUGUA A UUUAUGCA	1225	TGCATAAA GGCTAGCTACAACGA TACATACC	2927
5546	UGUAAUUU A UGCAAGGU	1226	ACCTTGCA GGCTAGCTACAACGA AAATTACA	2928
5548	UAAUUUAU G CAAGGUAU	1227	ATACCTTG GGCTAGCTACAACGA ATAAATTA	2929
5553	UAUGCAAG G UAUUUCUC	1228	GAGAAATA GGCTAGCTACAACGA CTTGCATA	2930
5555	UGCAAGGU A UUUCUCCA	1229	TGGAGAAA GGCTAGCTACAACGA ACCTTGCA	2931
5564	UUUCUCCA G UUGGGACU	1230	AGTCCCAA GGCTAGCTACAACGA TGGAGAAA	2932
5570	CAGUUGGG A CUCAGGAU	1231	ATCCTGAG GGCTAGCTACAACGA CCCAACTG	2933
5577	GACUCAGG A UAUUAGUU	1232	AACTAATA GGCTAGCTACAACGA CCTGAGTC	2934
5579	CUCAGGAU A UUAGUUAA	1233	TTAACTAA GGCTAGCTACAACGA ATCCTGAG	2935
5583	GGAUAUUA G UUAAUGAG	1234	CTCATTAA GGCTAGCTACAACGA TAATATCC	2936
5587	AUUAGUUA A UGAGCCAU	1235	ATGGCTCA GGCTAGCTACAACGA TAACTAAT	
5591	GUUAAUGA G CCAUCACU	1236	AGTGATGG GGCTAGCTACAACGA TCATTAAC	2938
5594	AAUGAGCC A UCACUAGA	1237	TCTAGTGA GGCTAGCTACAACGA GGCTCATT	2939
5597	GAGCCAUC A CUAGAAGA	1238	TCTTCTAG GGCTAGCTACAACGA GATGGCTC	2940
5609	GAAGAAAA G CCCAUUUU	1239	AAAATGGG GGCTAGCTACAACGA TTTTCTTC	2941
5613	AAAAGCCC A UUUUCAAC	1240	GTTGAAAA GGCTAGCTACAACGA GGGCTTTT	2942
5620	CAUUUUCA A CUGCUUUG	1241	CAAAGCAG GGCTAGCTACAACGA TGAAAATG	2943
5623	UUUCAACU G CUUUGAAA	1242	TTTCAAAG GGCTAGCTACAACGA AGTTGAAA	2944
5631	GCUUUGAA A CUUGCCUG	1243	CAGGCAAG GGCTAGCTACAACGA TTCAAAGC	2945
5635	UGAAACUU G CCUGGGGU	1244	ACCCCAGG GGCTAGCTACAACGA AAGTITCA	2946
				2230

			r	
5642	UGCCUGGG G UCUGAGCA	1245		2947
5648	GGGUCUGA G CAUGAUGG	1246	CCATCATG GGCTAGCTACAACGA TCAGACCC	2948
5650	GUCUGAGC A UGAUGGGA	1247	TCCCATCA GGCTAGCTACAACGA GCTCAGAC	2949
5653	UGAGCAUG A UGGGAAUA	1248	TATTCCCA GGCTAGCTACAACGA CATGCTCA	2950
5659	UGAUGGGA A UAGGGAGA	1249	TCTCCCTA GGCTAGCTACAACGA TCCCATCA	2951
5667	AUAGGGAG A CAGGGUAG	1250	CTACCCTG GGCTAGCTACAACGA CTCCCTAT	2952
5672	GAGACAGG G UAGGAAAG	1251	CTTTCCTA GGCTAGCTACAACGA CCTGTCTC	2953
5682	AGGAAAGG G CGCCUACU	1252	AGTAGGCG GGCTAGCTACAACGA CCTTTCCT	2954
5684	GAAAGGGC G CCUACUCU	1253	AGAGTAGG GGCTAGCTACAACGA GCCCTTTC	2955
5688	GGGCGCCU A CUCUUCAG	1254	CTGAAGAG GGCTAGCTACAACGA AGGCGCCC	2956
5698	UCUUCAGG G UCUAAAGA	1255	TCTTTAGA GGCTAGCTACAACGA CCTGAAGA	2957
5706	GUCUAAAG A UCAAGUGG	1256	CCACTTGA GGCTAGCTACAACGA CTTTAGAC	2958
5711	AAGAUCAA G UGGGCCUU	1257	AAGGCCCA GGCTAGCTACAACGA TTGATCTT	2959
5715	UCAAGUGG G CCUUGGAU	1258	ATCCAAGG GGCTAGCTACAACGA CCACTTGA	2960
5722	GGCCUUGG A UCGCUAAG	1259	CTTAGCGA GGCTAGCTACAACGA CCAAGGCC	2961
5725	CUUGGAUC G CUAAGCUG	1260	CAGCTTAG GGCTAGCTACAACGA GATCCAAG	2962
5730	AUCGCUAA G CUGGCUCU	1261	AGAGCCAG GGCTAGCTACAACGA TTAGCGAT	2963
5734	CUAAGCUG G CUCUGUUU	1262	AAACAGAG GGCTAGCTACAACGA CAGCTTAG	2964
5739	CUGGCUCU G UUUGAUGC	1263	GCATCAAA GGCTAGCTACAACGA AGAGCCAG	2965
5744	UCUGUUUG A UGCUAUUU	1264	AAATAGCA GGCTAGCTACAACGA CAAACAGA	2966
5746	UGUUUGAU G CUAUUUAU	1265	ATAAATAG GGCTAGCTACAACGA ATCAAACA	2967
5749	UUGAUGCU A UUUAUGCA	1266	TGCATAAA GGCTAGCTACAACGA AGCATCAA	2968
5753	UGCUAUUU A UGCAAGUU	1267	AACTTGCA GGCTAGCTACAACGA AAATAGCA	2969
5755	CUAUUUAU G CAAGUUAG	1268	CTAACTTG GGCTAGCTACAACGA ATAAATAG	2970
5759	UUAUGCAA G UUAGGGUC	1269	GACCCTAA GGCTAGCTACAACGA TTGCATAA	2971
5765	AAGUUAGG G UCUAUGUA	1270	TACATAGA GGCTAGCTACAACGA CCTAACTT	2972
5769	UAGGGUCU A UGUAUUUA	1271	TARATACA GGCTAGCTACAACGA AGACCCTA	2973
5771	GGGUCUAU G UAUUUAGG	1272	CCTAAATA GGCTAGCTACAACGA ATAGACCC	2974
5773	GUCUAUGU A UUUAGGAU	1273	ATCCTAAA GGCTAGCTACAACGA ACATAGAC	2975
5780	UAUUUAGG A UGCGCCUA	1274	TAGGCGCA GGCTAGCTACAACGA CCTAAATA	2976
5782	UUUAGGAU G CGCCUACU	1275	AGTAGGCG GGCTAGCTACAACGA ATCCTAAA	2977
5784	UAGGAUGC G CCUACUCU	1276	AGAGTAGG GGCTAGCTACAACGA GCATCCTA	2978
5788	AUGCGCCU A CUCUUCAG	1277	CTGAAGAG GGCTAGCTACAACGA AGGCGCAT	2979
5798	UCUUCAGG G UCUAAAGA	1278	TCTTTAGA GGCTAGCTACAACGA CCTGAAGA	2980
5806	GUCUAAAG A UCAAGUGG	1279	CCACTTGA GGCTAGCTACAACGA CTTTAGAC	2981
5811	AAGAUCAA G UGGGCCUU	1280	AAGGCCCA GGCTAGCTACAACGA TTGATCTT	2982
5815	UCAAGUGG G CCUUGGAU	1281	ATCCAAGG GGCTAGCTACAACGA CCACTTGA	2983
5822	GGCCUUGG A UCGCUAAG	1282	CTTAGCGA GGCTAGCTACAACGA CCAAGGCC	2984
5825	CUUGGAUC G CUAAGCUG	1283	CAGCTTAG GGCTAGCTACAACGA GATCCAAG	2985
5830	AUCGCUAA G CUGGCUCU	1284	AGAGCCAG GGCTAGCTACAACGA TTAGCGAT	2986
5834	CUAAGCUG G CUCUGUUU	1285	AAACAGAG GGCTAGCTACAACGA CAGCTTAG	
5839	CUGGCUCU G UUUGAUGC	1286	GCATCAAA GGCTAGCTACAACGA AGAGCCAG	
5844	UCUGUUUG A UGCUAUUU	1287	AAATAGCA GGCTAGCTACAACGA CAAACAGA	
5846	UGUUUGAU G CUAUUUAU	1288	ATAAATAG GGCTAGCTACAACGA ATCAAACA	
5849		1288		2990
	UUGAUGCU A UUUAUGCA	1289	TGCATAAA GGCTAGCTACAACGA AGCATCAA	2991
5853	CUAUUU A UGCAAGUU		AACTTGCA GGCTAGCTACAACGA AAATAGCA	2992
5855	CUAUUUAU G CAAGUUAG	1291	CTAACTTG GGCTAGCTACAACGA ATAAATAG	2993
5859	DUAUGCAA G UUAGGGUC	1292	GACCCTAA GGCTAGCTACAACGA TTGCATAA	2994
5865	AAGUUAGG G UCUAUGUA	1293	TACATAGA GGCTAGCTACAACGA CCTAACTT	
5869	UAGGGUCU A UGUAUUUA	1294	TAAATACA GGCTAGCTACAACGA AGACCCTA	2996
5871	GGGUCUAU G UAUUUAGG	1295	CCTAAATA GGCTAGCTACAACGA ATAGACCC	
5873	GUCUAUGU A UUUAGGAU	1296	ATCCTAAA GGCTAGCTACAACGA ACATAGAC	2998

5880	UAUUUAGG A UGUCUGCA	1297	TGCAGACA GGCTAGCTACAACGA CCTAAATA	2999
5882	UUUAGGAU G UCUGCACC	1298	GGTGCAGA GGCTAGCTACAACGA ATCCTAAA	3000
5886	GGAUGUCU G CACCUUCU	1299	AGAAGGTG GGCTAGCTACAACGA AGACATCC	3001
5888	AUGUCUGC A CCUUCUGC	1300	GCAGAAGG GGCTAGCTACAACGA GCAGACAT	3002
5895	CACCUUCU G CAGCCAGU	1301	ACTGGCTG GGCTAGCTACAACGA AGAAGGTG	3003
5898	CUUCUGCA G CCAGUCAG	1302	CTGACTGG GGCTAGCTACAACGA TGCAGAAG	3004
5902	UGCAGCCA G UCAGAAGC	1303	GCTTCTGA GGCTAGCTACAACGA TGGCTGCA	3005
5909	AGUCAGAA G CUGGAGAG	1304	CTCTCCAG GGCTAGCTACAACGA TTCTGACT	3006
5918	CUGGAGAG G CAACAGUG	1305	CACTGTTG GGCTAGCTACAACGA CTCTCCAG	3007
5921	GAGAGGCA A CAGUGGAU	1306	ATCCACTG GGCTAGCTACAACGA TGCCTCTC	3008
5924	AGGCAACA G UGGAUUGC	1307	GCAATCCA GGCTAGCTACAACGA TGTTGCCT	3009
5928	AACAGUGG A UUGCUGCU	1308	AGCAGCAA GGCTAGCTACAACGA CCACTGTT	3010
5931	AGUGGAUU G CUGCUUCU	1309	AGAAGCAG GGCTAGCTACAACGA AATCCACT	3011
5934	GGAUUGCU G CUUCUUGG	1310	CCAAGAAG GGCTAGCTACAACGA AGCAATCC	3012
5951	GGAGAAGA G UAUGCUUC	1311	GAAGCATA GGCTAGCTACAACGA TCTTCTCC	3013
5953	AGAAGAGU A UGCUUCCU	1312	AGGAAGCA GGCTAGCTACAACGA ACTCTTCT	3014
5955	AAGAGUAU G CUUCCUUU	1313	AAAGGAAG GGCTAGCTACAACGA ATACTCTT	3015
5965	UUCCUUUU A UCCAUGUA	1314	TACATGGA GGCTAGCTACAACGA AAAAGGAA	3016
5969	UUUUAUCC A UGUAAUUU	1315	AAATTACA GGCTAGCTACAACGA GGATAAAA	3017
5971	UUAUCCAU G UAAUUUAA	1316	TTAAATTA GGCTAGCTACAACGA ATGGATAA	3018
5974	UCCAUGUA A UUUAACUG	1317	CAGTTAAA GGCTAGCTACAACGA TACATGGA	3019
5979	GUAAUUUA A CUGUAGAA	1318	TTCTACAG GGCTAGCTACAACGA TAAATTAC	3020
5982	AUUUAACU G UAGAACCU	1319	AGGTTCTA GGCTAGCTACAACGA AGTTAAAT	3021
5987	ACUGUAGA A CCUGAGCU	1320	AGCTCAGG GGCTAGCTACAACGA TCTACAGT	3022
5993	GAACCUGA G CUCUAAGU	1321	ACTTAGAG GGCTAGCTACAACGA TCAGGTTC	3023
6000	AGCUCUAA G UAACCGAA	1322	TTCGGTTA GGCTAGCTACAACGA TTAGAGCT	3024
6003	UCUAAGUA A CCGAAGAA	1323	TTCTTCGG GGCTAGCTACAACGA TACTTAGA	3025
				3023
6011	ACCGAAGA A UGUAUGCC	1324	GGCATACA GGCTAGCTACAACGA TCTTCGGT	3025
6011 6013				
	ACCGAAGA A UGUAUGCC	1324	GGCATACA GGCTAGCTACAACGA TCTTCGGT	3026
6013	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC	1324 1325	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG	3026 3027
6013 6015	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG	1324 1325 1326	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT	3026 3027 3028
6013 6015 6017	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU	1324 1325 1326 1327	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ATACATTC	3026 3027 3028 3029
6013 6015 6017 6023	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG	1324 1325 1326 1327 1328	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ATACATTC CATAAGAA GGCTAGCTACAACGA AGAGGCAT	3026 3027 3028 3029 3030
6013 6015 6017 6023 6029	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG CUGUUCUU A UGUGCCAC	1324 1325 1326 1327 1328 1329	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ATACATTC CATAAGAA GGCTAGCTACAACGA AGAGGCAT GTGGCACA GGCTAGCTACAACGA AAGAACAG	3026 3027 3028 3029 3030 3031
6013 6015 6017 6023 6029 6031	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG CUGUUCUU A UGUGCCAC GUUCUUAU G UGCCACAU	1324 1325 1326 1327 1328 1329 1330	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ATACATTC CATAAGAA GGCTAGCTACAACGA AGAGCAT GTGGCACA GGCTAGCTACAACGA AAGAACAG ATGTGGCA GGCTAGCTACAACGA ATAAGAAC	3026 3027 3028 3029 3030 3031 3032
6013 6015 6017 6023 6029 6031 6033	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG CUGUUCUU A UGUGCCAC GUUCUUAU G UGCCACAU UCUUAUGU G CCACAUCC	1324 1325 1326 1327 1328 1329 1330	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ATACATTC CATAAGAA GGCTAGCTACAACGA AGAGGCAT GTGGCACA GGCTAGCTACAACGA AAGAACAG ATGTGGCA GGCTAGCTACAACGA ATAAGAAC GGATGTGG GGCTAGCTACAACGA ACATAAGA	3026 3027 3028 3029 3030 3031 3032 3033
6013 6015 6017 6023 6029 6031 6033	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG CUGUUCUU A UGUGCCAC GUUCUUAU G UGCCACAU UCUUAUGU G CCACAUCC UAUGUGCC A CAUCCUUG	1324 1325 1326 1327 1328 1329 1330 1331 1332	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ATACATTC CATAAGAA GGCTAGCTACAACGA AGAGGCAT GTGGCACA GGCTAGCTACAACGA AAGAACAG ATGTGGCA GGCTAGCTACAACGA ATAAGAAC GGATGTGG GGCTAGCTACAACGA ACATAAGA CAAGGATG GGCTAGCTACAACGA GGCACATA	3026 3027 3028 3029 3030 3031 3032 3033 3034 3035
6013 6015 6017 6023 6029 6031 6033 6036	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG CUGUUCUU A UGUGCCAC GUUCUUAU G UGCCACAU UCUUAUGU G CCACAUCC UAUGUGCCAC A CAUCCUUG	1324 1325 1326 1327 1328 1329 1330 1331 1332	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ATACATTC CATAAGAA GGCTAGCTACAACGA AGAGCAT GTGGCACA GGCTAGCTACAACGA AAGAACAG ATGTGGCA GGCTAGCTACAACGA ATAAGAAC GGATGTGG GGCTAGCTACAACGA ACATAAGA CAAGGATG GGCTAGCTACAACGA GGCACATA AACAAGGA GGCTAGCTACAACGA GTGGCACA	3026 3027 3028 3029 3030 3031 3032 3033 3034 3035
6013 6015 6017 6023 6029 6031 6033 6036 6038	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG CUGUUCUU A UGUGCCAC GUUCUUAU G UGCCACAU UCUUAUGU G CCACAUCC UAUGUGCCA CAUCCUUG UGUGCCAC A UCCUUGUU ACAUCCUU G UUUAAAGG	1324 1325 1326 1327 1328 1329 1330 1331 1332 1333	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ATACATTC CATAAGAA GGCTAGCTACAACGA AGAGGCAT GTGGCACA GGCTAGCTACAACGA AAGAACAG ATGTGGCA GGCTAGCTACAACGA ATAAGAAC GGATGTGG GGCTAGCTACAACGA ACATAAGA CAAGGATG GGCTAGCTACAACGA GGCACATA AACAAGGA GGCTAGCTACAACGA GTGGCACA CCTTTAAA GGCTAGCTACAACGA AAGGATGT	3026 3027 3028 3029 3030 3031 3032 3033 3034 3035 3036
6013 6015 6017 6023 6029 6031 6033 6036 6038 6044 6052	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG CUGUUCUU A UGUGCCAC GUUCUUAU G UGCCACAU UCUUAUGU G CCACAUCC UAUGUGCC A CAUCCUUG UGUGCCAC A UCCUUGUU ACAUCCUU G UUUAAAGG GUUUAAAG G CUCCUGU	1324 1325 1326 1327 1328 1329 1330 1331 1332 1333 1334 1335	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ATACATTC CATAAGAA GGCTAGCTACAACGA AGAGCAT GTGGCACA GGCTAGCTACAACGA AAGAACAG ATGTGGCA GGCTAGCTACAACGA ATAAGAAC GGATGTGG GGCTAGCTACAACGA ACATAAGA CAAGGATG GGCTAGCTACAACGA GGCACATA AACAAGGA GGCTAGCTACAACGA GTGGCACA CCTTTAAA GGCTAGCTACAACGA AAGGATGT ACAGAGAG GGCTAGCTACAACGA CTTTAAAC	3026 3027 3028 3029 3030 3031 3032 3033 3034 3035 3036 3037
6013 6015 6017 6023 6029 6031 6033 6036 6038 6044 6052 6059	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG CUGUUCUU A UGUGCCAC GUUCUUAU G UGCCACAU UCUUAUGU G CCACAUCC UAUGUGCC A CAUCCUUG UGUGCCAC A UCCUUGUU ACAUCCUU G UUUAAAGG GUUUAAAG G CUCUCUGU GGCUCUCU G UAUGAAGA	1324 1325 1326 1327 1328 1329 1330 1331 1332 1333 1334 1335	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ATACATTC CATAAGAA GGCTAGCTACAACGA AGAGCAT GTGGCACA GGCTAGCTACAACGA AAGAACAG ATGTGGCA GGCTAGCTACAACGA ATAAGAAC GGATGTGG GGCTAGCTACAACGA ACATAAGA CAAGGATG GGCTAGCTACAACGA GCACATA AACAAGGA GGCTAGCTACAACGA GTGGCACA CCTTTAAA GGCTAGCTACAACGA AAGGATGT ACAGAGAG GGCTAGCTACAACGA CTTTAAAC TCTTCATA GGCTAGCTACAACGA AGGAGGCC	3026 3027 3028 3029 3030 3031 3032 3033 3034 3035 3036 3037 3038 3039
6013 6015 6017 6023 6029 6031 6033 6036 6038 6044 6052 6059	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG CUGUUCUU A UGUGCCAC GUUCUUAU G UGCCACAU UCUUAUGU G CCACAUCC UAUGUGCCAC A CAUCCUUG UGUGCCAC A UCCUUGUU ACAUCCUU G UUUAAAGG GUUUAAAG G CUCUCUGU GGCUCUCU G UAUGAAGA	1324 1325 1326 1327 1328 1329 1330 1331 1332 1333 1334 1335 1336	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ATACATTC CATAAGAA GGCTAGCTACAACGA AGAGCAT GTGGCACA GGCTAGCTACAACGA AAGAACAG ATGTGGCA GGCTAGCTACAACGA ATAAGAAC GGATGTGG GGCTAGCTACAACGA ACATAAGA CAAGGATG GGCTAGCTACAACGA GGCACATA AACAAGGA GGCTAGCTACAACGA GTGGCACA CCTTTAAA GGCTAGCTACAACGA CTTTAAAC TCTTCATA GGCTAGCTACAACGA AGAGAGGC TCTCTTCA GGCTAGCTACAACGA AGAGAGCC	3026 3027 3028 3029 3030 3031 3032 3033 3034 3035 3036 3037 3038 3039 3040
6013 6015 6017 6023 6029 6031 6033 6036 6038 6044 6052 6059 6061	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG CUGUUCUU A UGUGCCAC GUUCUUAU G UGCCACAU UCUUAUGU G CCACAUCC UAUGUGCCAC A CAUCCUUG UGUGCCAC A UCCUUGUU ACAUCCUU G UUUAAAGG GUUUAAAG G CUCUCUGU GGCUCUCU G UAUGAAGA CUCUCUGU A UGAAGAGA AUGAAGAG A UGGGACCG	1324 1325 1326 1327 1328 1329 1330 1331 1332 1333 1334 1335 1336 1337	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ACATTCTT CATAAGAA GGCTAGCTACAACGA AGAGGCAT GTGGCACA GGCTAGCTACAACGA AAGAACAG ATGTGGCA GGCTAGCTACAACGA ATAAGAAC GGATGTGG GGCTAGCTACAACGA ACATAAGA CAAGGATG GGCTAGCTACAACGA GCACATA AACAAGGA GGCTAGCTACAACGA GTGGCACA ACCTTTAAA GGCTAGCTACAACGA ATGTGCACA CCTTTAAA GGCTAGCTACAACGA CTTTAAAC TCTTCATA GGCTAGCTACAACGA AGAGAGCC TCTCTTCA GGCTAGCTACAACGA ACAGAGAG CCGTTCCA GGCTAGCTACAACGA CTCTTCAT	3026 3027 3028 3029 3030 3031 3032 3033 3034 3035 3036 3037 3038 3039 3040
6013 6015 6017 6023 6029 6031 6033 6036 6038 6044 6052 6059 6061 6069	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG CUGUUCUU A UGUGCCAC GUUCUUAU G UGCCACAU UCUUAUGU G CCACAUCC UAUGUGCCAC A UCCUUGUU ACAUCCUU G UUUAAAGG GUUUAAAG G CUCUCUGU GGCUCUCU G UAUGAAGA CUCCUCUGU A UGAAGAGA AUGAAGAG A UGCGACCG GAGAUGGG A CCGUCAUC	1324 1325 1326 1327 1328 1329 1330 1331 1332 1333 1334 1335 1336 1337 1338	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ATACATTC CATAAGAA GGCTAGCTACAACGA AGAGGCAT GTGGCACA GGCTAGCTACAACGA AAGAACAG ATGTGGCA GGCTAGCTACAACGA ATAAGAAC GGATGTGG GGCTAGCTACAACGA ACATAAGA CAAGGATG GGCTAGCTACAACGA GGCACATA AACAAGGA GGCTAGCTACAACGA GTGGCACA CCTTTAAA GGCTAGCTACAACGA CTTTAAAC TCTTCATA GGCTAGCTACAACGA AGAGAGGC TCTCTTCA GGCTAGCTACAACGA ACAGAGAG CCGTTCCA GGCTAGCTACAACGA CTCTTCAT GATGACGG GGCTAGCTACAACGA CTCTTCAT	3026 3027 3028 3029 3030 3031 3032 3033 3034 3035 3036 3037 3038 3039 3040 3041
6013 6015 6017 6023 6029 6031 6033 6036 6038 6044 6052 6059 6061 6069 6074	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG CUGUUCUU A UGUGCCAC GUUCUUAU G UGCCACAU UCUUAUGU G CCACAUCC UAUGUGCCAC A UCCUUGUU ACAUCCUU G UUUAAAGG GUUUAAAG G CUCCUCUGU GGCUCUCU G UAUGAAGA CUCCUCUGU A UGAAGAGA AUGAAGAG A UGCGACCG GAGAUGGG A CCGUCAUC AUGGGACC G UCAUCAGC	1324 1325 1326 1327 1328 1329 1330 1331 1332 1333 1334 1335 1336 1337 1338 1339	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ATACATTC CATAAGAA GGCTAGCTACAACGA AGAGGCAT GTGGCACA GGCTAGCTACAACGA AAGAACAG ATGTGGCA GGCTAGCTACAACGA ATAAGAAC GGATGTGG GGCTAGCTACAACGA ACATAAGA CAAGGATG GGCTAGCTACAACGA GGCACATA AACAAGGA GGCTAGCTACAACGA GTGGCACA ACATTAAA GGCTAGCTACAACGA GTGGCACA CCTTTAAA GGCTAGCTACAACGA CTTTAAAC TCTTCATA GGCTAGCTACAACGA ACAGAGAG CCGTTCCA GGCTAGCTACAACGA CTCTTCAT GATGACGG GGCTAGCTACAACGA CTCTTCAT GATGACGG GGCTAGCTACAACGA CCCATCTC GCTGATGA GGCTAGCTACAACGA CCCATCTC	3026 3027 3028 3029 3030 3031 3032 3033 3034 3035 3036 3037 3038 3039 3040 3041 3042 3043
6013 6015 6017 6023 6029 6031 6033 6036 6038 6044 6052 6059 6061 6069 6074 6077	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG CUGUUCUU A UGUGCCAC GUUCUUAU G UGCCACAU UCUUAUGU G CCACAUCC UAUGUGCCAC A UCCUUGUU ACAUCCUU G UUUAAAGG GUUUAAAG G CUCUCUGU GGCUCUCU G UAUGAAGA CUCUCUGU A UGAAGAGA AUGAAGAG A UGCGACCC AUGAGACCG GAGAUGGG C CCGUCAUC CGGACCGC G UCAUCAGC	1324 1325 1326 1327 1328 1329 1330 1331 1332 1333 1334 1335 1336 1337 1338 1339 1340 1341 1342	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ACATTCTT CATAAGAA GGCTAGCTACAACGA AGAGGCAT GTGGCACA GGCTAGCTACAACGA AAGAACAG ATGTGGCA GGCTAGCTACAACGA ATAAGAAC GGATGTGG GGCTAGCTACAACGA ACATAAGA CAAGGATG GGCTAGCTACAACGA GGCACATA AACAAGGA GGCTAGCTACAACGA GTGGCACA ACATTAAA GGCTAGCTACAACGA CTTTAAAC CCTTTAAA GGCTAGCTACAACGA AAGAACGT TCTTCATA GGCTAGCTACAACGA ACAGAGAG CCGTCCCA GGCTAGCTACAACGA CTCTTCAT GATGACGG GGCTAGCTACAACGA CTCTTCAT GATGACGG GGCTAGCTACAACGA CTCTTCAT CCGTCCCA GGCTAGCTACAACGA CTCTTCAT GATGACGG GGCTAGCTACAACGA CCCATCTC GCTGATGA GGCTAGCTACAACGA GGCCCAT TGTGCTGA GGCTAGCTACAACGA GACGGTCC GGAATGTG GGCTAGCTACAACGA GACGGTCC GGAATGTG GGCTAGCTACAACGA GACGGTCC	3026 3027 3028 3029 3030 3031 3032 3033 3034 3035 3036 3037 3038 3039 3040 3041 3042 3043 3044
6013 6015 6017 6023 6029 6031 6033 6036 6038 6044 6052 6059 6061 6069 6074 6077 6080	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG CUGUUCUU A UGUGCCAC GUUCUUAU G UGCCACAU UCUUAUGU G CCACAUCC UAUGUGCCAC A UCCUUGUU ACAUCCUU G UUUAAAGG GUUUAAAG G CUCUCUGU GGCUCUCU G UAUGAAGA CUCUCUGU A UGAAGAGA AUGAAGAG A UGGGACCG GAGAUGGG A CCGUCAUC AUGGGACC G UCAUCAGC GGACCGUC A UCAGCACA CGUCAUCA G CACAUUCC	1324 1325 1326 1327 1328 1329 1330 1331 1332 1333 1334 1335 1336 1337 1338 1339 1340 1341 1342	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ACATTCTT CATAAGAA GGCTAGCTACAACGA AGAGGCAT GTGGCACA GGCTAGCTACAACGA AAGAACAG ATGTGGCA GGCTAGCTACAACGA ATAAGAAC GGATGTGG GGCTAGCTACAACGA ACATAAGA CAAGGATG GGCTAGCTACAACGA GGCACATA AACAAGGA GGCTAGCTACAACGA GTGGCACA ACATTAAA GGCTAGCTACAACGA GTGGCACA CCTTTAAA GGCTAGCTACAACGA AAGGATGT TCTTCATA GGCTAGCTACAACGA ACAGAGAG CCGTTCCA GGCTAGCTACAACGA CTCTTCAT GATGACGG GGCTAGCTACAACGA CCCATCTC GATGACGA GGCTAGCTACAACGA CCCATCTC GCTGATGA GGCTAGCTACAACGA GGCCCAT TGTGCTGA GGCTAGCTACAACGA GGCCCCAT	3026 3027 3028 3029 3030 3031 3032 3033 3034 3035 3036 3037 3038 3039 3040 3041 3042 3043 3044 3045
6013 6015 6017 6023 6029 6031 6033 6036 6038 6044 6052 6059 6061 6069 6077 6080 6084 6086	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG CUGUUCUU A UGUGCCAC GUUCUUAU G UGCCACAU UCUUAUGU G CCACAUCC UAUGUGCCA C CAUCCUUG UGUGCCAC A UCCUUGUU ACAUCCUU G UUUAAAGG GUUUAAAG G CUCUCUGU GGCUCUCU G UAUGAAGA CUCUCUGU A UGAAGAGA AUGAAGAG A UGGGACCG GAGAUGGG A CCGUCAUC AUGGGACCG G UCAUCAGC CGUCAUCA G CACAUUCC UCAUCAGC A CAUUCCCU	1324 1325 1326 1327 1328 1329 1330 1331 1332 1333 1334 1335 1336 1337 1338 1339 1340 1341 1342 1343	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ACATTCTT CATAAGAA GGCTAGCTACAACGA AGAGCAT GTGGCACA GGCTAGCTACAACGA AGAGACAG ATGTGGCA GGCTAGCTACAACGA ATAAGAACAG GGATGTGG GGCTAGCTACAACGA ATAAGAAC CAAGGATG GGCTAGCTACAACGA GCACATA AACAAGGA GGCTAGCTACAACGA GTGGCACA ACAGAGAG GGCTAGCTACAACGA AAGGATGT ACAGAGAG GGCTAGCTACAACGA AGGATGT TCTTCATA GGCTAGCTACAACGA ACAGAGAG CCGTTCCAT GGCTAGCTACAACGA CTCTTCAT GATGACGG GGCTAGCTACAACGA CTCTTCAT GATGACGG GGCTAGCTACAACGA CTCTTCAT GATGACGG GGCTAGCTACAACGA CCCATCTC GCTGATGA GGCTAGCTACAACGA GGCCCAT TGTGCTGA GGCTAGCTACAACGA GACGGTCC GGAATGTG GGCTAGCTACAACGA GACGGTCC GGAATGTG GGCTAGCTACAACGA GTCCCAT TGTGCTGA GGCTAGCTACAACGA GACGGTCC GGAATGTG GGCTAGCTACAACGA GCTGATGA CCAGGGAA GGCTAGCTACAACGA GCTGATGA CCAGGGAA	3026 3027 3028 3029 3030 3031 3032 3033 3034 3035 3036 3037 3038 3039 3040 3041 3042 3043 3044 3045 3046
6013 6015 6017 6023 6029 6031 6033 6036 6038 6044 6052 6059 6061 6069 6074 6077 6080 6084 6088	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG CUGUUCUU A UGUGCCAC GUUCUUAU G UGCCACAU UCUUAUGU G CCACAUCC UAUGUGCCA C AUCCCUUG UGUGCCAC A UCCUUGUU ACAUCCUU G UUUAAAGG GUUUAAAG G CUCUCUGU GGCUCUCU G UAUGAAGA CUCUCUGU A UGAAGAGA AUGAAGAG A UGGGACCG GAGAUGGG A CCGUCAUC AUGGGACC G UCAUCAGC CGUCAUCA G CACAUUCC UCAUCAGC A CAUUCCCU AUCAGCAC A UUCCCUAG AUCAGCAC A UUCCCUAG	1324 1325 1326 1327 1328 1329 1330 1331 1332 1333 1334 1335 1336 1337 1338 1339 1340 1341 1342 1343 1344	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ACATTCTT CATAAGAA GGCTAGCTACAACGA AGAGCAT GTGGCACA GGCTAGCTACAACGA AGAGCACA ATGTGGCA GGCTAGCTACAACGA ATAAGAACAG ATGTGGCA GGCTAGCTACAACGA ATAAGAACAG GGATGTGG GGCTAGCTACAACGA ACATAAGA CAAGGATG GGCTAGCTACAACGA GTGGCACA AACAAGGA GGCTAGCTACAACGA AAGGATGT ACAGAGAG GGCTAGCTACAACGA AGAGATGT TCTTCATA GGCTAGCTACAACGA AGAGAGGC TCTCTTCA GGCTAGCTACAACGA ACAGAGAG CCGTCCCA GGCTAGCTACAACGA CTCTTCAT GATGACGG GGCTAGCTACAACGA CTCTTCAT GATGACGG GGCTAGCTACAACGA CCCATCTC GCTGATGA GGCTAGCTACAACGA GCCCATCTC GCTGATGA GGCTAGCTACAACGA GACGGTCC GGAATGTG GGCTAGCTACAACGA GACGGTCC GGAATGTG GGCTAGCTACAACGA GACGGTCC GGAATGTG GGCTAGCTACAACGA GCTGATGA AGGGAATG	3026 3027 3028 3029 3030 3031 3032 3033 3034 3035 3036 3037 3038 3039 3040 3041 3042 3043 3044 3045 3046 3047
6013 6015 6017 6023 6029 6031 6033 6036 6038 6044 6052 6059 6061 6069 6074 6077 6080 6084 6086 6088	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG CUGUUCUU A UGUGCCAC GUUCUUAU G UGCCACAU UCUUAUGU G CCACAUCC UAUGUGCCAC A CAUCCUUG UGUGCCAC A UCCUUGUU ACAUCCUU G UUUAAAGG GUUUAAAG G CUCUCUGU GGCUCUCU G UAUGAAGA CUCUCUGU A UGAAGAGA AUGAAGAG A UGGGACCG GAGAUGGG A CCGUCAUC GGACCGUC A UCAUCAGC CGUCAUCA G CACAUUCC UCAUCAGC A CAUUCCCU AUCAGCAC A UCCCUAG AUCAGCAC A UCCCUAG AUCAGCAC A UCCCCUAG AUUCCCUA G UGAGCCUA	1324 1325 1326 1327 1328 1329 1330 1331 1332 1333 1334 1335 1336 1337 1338 1339 1340 1341 1342 1343 1344 1345 1346	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ACATTCTT CATAAGAA GGCTAGCTACAACGA AGAGGCAT GTGGCACA GGCTAGCTACAACGA AGAGACAG ATGTGGCA GGCTAGCTACAACGA AAGAACAG ATGTGGCA GGCTAGCTACAACGA ATAAGAAC GGATGTGG GGCTAGCTACAACGA ACATAAGA CAAGGATG GGCTAGCTACAACGA GGCACATA AACAAGGA GGCTAGCTACAACGA GTGGCACA ACATTAAA GGCTAGCTACAACGA AAGAATGT ACAGAGAG GGCTAGCTACAACGA CTTTAAAC CTTTCATA GGCTAGCTACAACGA AGAGAGGC TCTCTTCA GGCTAGCTACAACGA CTCTTCAT GATGACGG GGCTAGCTACAACGA CTCTTCAT GATGACGG GGCTAGCTACAACGA CTCTTCAT GGTGATGA GGCTAGCTACAACGA GCCCATCTC GCTGATGA GGCTAGCTACAACGA GACGGTCC GGAATGTG GGCTAGCTACAACGA GACGGTCC GGAATGTG GGCTAGCTACAACGA GACGGTCC GGAATGTG GGCTAGCTACAACGA GCTGATGA AGGGAATG GGCTAGCTACAACGA GCTGATGA CTAGGGAA GGCTAGCTACAACGA GTGCTGAT TAGGCTCA GGCTAGCTACAACGA TGATGACG CTAGGTAGG GGCTAGCTACAACGA TAGGGAAT TAGGCTCA GGCTAGCTACAACGA TAGGGAAT TAGGCTCA GGCTAGCTACAACGA TAGGGAAT CTAGGCTAC GGCTAGCTACAACGA TAGGGAAT CAGTAGG GGCTAGCTACAACGA TAGGGAAT	3026 3027 3028 3029 3030 3031 3032 3033 3034 3035 3036 3037 3048 3040 3041 3042 3043 3044 3045 3046 3047 3048
6013 6015 6017 6023 6029 6031 6033 6036 6038 6044 6052 6059 6061 6069 6074 6077 6080 6084 6088	ACCGAAGA A UGUAUGCC CGAAGAAU G UAUGCCUC AAGAAUGU A UGCCUCUG GAAUGUAU G CCUCUGUU AUGCCUCU G UUCUUAUG CUGUUCUU A UGUGCCAC GUUCUUAU G UGCCACAU UCUUAUGU G CCACAUCC UAUGUGCCA C AUCCCUUG UGUGCCAC A UCCUUGUU ACAUCCUU G UUUAAAGG GUUUAAAG G CUCUCUGU GGCUCUCU G UAUGAAGA CUCUCUGU A UGAAGAGA AUGAAGAG A UGGGACCG GAGAUGGG A CCGUCAUC AUGGGACC G UCAUCAGC CGUCAUCA G CACAUUCC UCAUCAGC A CAUUCCCU AUCAGCAC A UUCCCUAG AUCAGCAC A UUCCCUAG	1324 1325 1326 1327 1328 1329 1330 1331 1332 1333 1334 1335 1336 1337 1338 1339 1340 1341 1342 1343 1344	GGCATACA GGCTAGCTACAACGA TCTTCGGT GAGGCATA GGCTAGCTACAACGA ATTCTTCG CAGAGGCA GGCTAGCTACAACGA ACATTCTT AACAGAGG GGCTAGCTACAACGA ACATTCTT CATAAGAA GGCTAGCTACAACGA AGAGCAT GTGGCACA GGCTAGCTACAACGA AGAGCACA ATGTGGCA GGCTAGCTACAACGA ATAAGAACAG ATGTGGCA GGCTAGCTACAACGA ATAAGAACAG GGATGTGG GGCTAGCTACAACGA ACATAAGA CAAGGATG GGCTAGCTACAACGA GTGGCACA AACAAGGA GGCTAGCTACAACGA AAGGATGT ACAGAGAG GGCTAGCTACAACGA AGAGATGT TCTTCATA GGCTAGCTACAACGA AGAGAGGC TCTCTTCA GGCTAGCTACAACGA ACAGAGAG CCGTCCCA GGCTAGCTACAACGA CTCTTCAT GATGACGG GGCTAGCTACAACGA CTCTTCAT GATGACGG GGCTAGCTACAACGA CCCATCTC GCTGATGA GGCTAGCTACAACGA GCCCATCTC GCTGATGA GGCTAGCTACAACGA GACGGTCC GGAATGTG GGCTAGCTACAACGA GACGGTCC GGAATGTG GGCTAGCTACAACGA GACGGTCC GGAATGTG GGCTAGCTACAACGA GCTGATGA AGGGAATG	3026 3027 3028 3029 3030 3031 3032 3033 3034 3035 3036 3037 3038 3039 3040 3041 3042 3043 3044 3045 3046 3047

6115	GGCUCCUG G CAGCGGCU	1349	AGCCGCTG GGCTAGCTACAACGA CAGGAGCC	3051
6118	UCCUGGCA G CGGCUUUU	1350	AAAAGCCG GGCTAGCTACAACGA TGCCAGGA	3052
6121	UGGCAGCG G CUUUUGUG	1351	CACAAAAG GGCTAGCTACAACGA CGCTGCCA	3053
6127	CGGCUUUU G UGGAAGAC	1352	GTCTTCCA GGCTAGCTACAACGA AAAAGCCG	3054
6134	UGUGGAAG A CUCACUAG	1353	CTAGTGAG GGCTAGCTACAACGA CTTCCACA	3055
6138	GAAGACUC A CUAGCCAG	1354	CTGGCTAG GGCTAGCTACAACGA GAGTCTTC	3056
6142	ACUCACUA G CCAGAAGA	1355	TCTTCTGG GGCTAGCTACAACGA TAGTGAGT	3057
6156	AGAGAGGA G UGGGACAG	1356	CTGTCCCA GGCTAGCTACAACGA TCCTCTCT	3058
6161	GGAGUGGG A CAGUCCUC	1357	GAGGACTG GGCTAGCTACAACGA CCCACTCC	3059
6164	GUGGGACA G UCCUCUCC	1358	GGAGAGGA GGCTAGCTACAACGA TGTCCCAC	3060
6173	UCCUCUCC A CCAAGAUC	1359	GATCTTGG GGCTAGCTACAACGA GGAGAGGA	3061
6179	CCACCAAG A UCUAAAUC	1360	GATTTAGA GGCTAGCTACAACGA CTTGGTGG	3062
6185	AGAUCUAA A UCCAAACA	1361	TGTTTGGA GGCTAGCTACAACGA TTAGATCT	3063
6191	AAAUCCAA A CAAAAGCA	1362	TGCTTTTG GGCTAGCTACAACGA TTGGATTT	3064
6197	AAACAAAA G CAGGCUAG	1363	CTAGCCTG GGCTAGCTACAACGA TITTGTTT	3065
6201	AAAAGCAG G CUAGAGCC	1364	GGCTCTAG GGCTAGCTACAACGA CTGCTTTT	3066
6207	AGGCUAGA G CCAGAAGA	1365	TCTTCTGG GGCTAGCTACAACGA TCTAGCCT	3067
6220	AAGAGAGG A CAAAUCUU	1366	AAGATTTG GGCTAGCTACAACGA CCTCTCTT	3068
6224	GAGGACAA A UCUUUGUU	1367	AACAAAGA GGCTAGCTACAACGA TTGTCCTC	3069
6230	AAAUCUUU G UUGUUCCU	1368	AGGAACAA GGCTAGCTACAACGA AAAGATTT	3070
6233	UCUUUGUU G UUCCUCUU	1369	AAGAGGAA GGCTAGCTACAACGA AACAAAGA	3071
6246	UCUUCUUU A CACAUACG	1370	CGTATGTG GGCTAGCTACAACGA AAAGAAGA	3072
6248	UUCUUUAC A CAUACGCA	1371	TGCGTATG GGCTAGCTACAACGA GTAAAGAA	3073
6250	CUUUACAC A UACGCAAA	1372	TTTGCGTA GGCTAGCTACAACGA GTGTAAAG	3074
6252	UUACACAU A CGCAAACC	1373	GGTTTGCG GGCTAGCTACAACGA ATGTGTAA	3075
6254	ACACAUAC G CAAACCAC	1374	GTGGTTTG GGCTAGCTACAACGA GTATGTGT	3076
6258	AUACGCAA A CCACCUGU	1375	ACAGGTGG GGCTAGCTACAACGA TTGCGTAT	3077
6261	CGCAAACC A CCUGUGAC	1376	GTCACAGG GGCTAGCTACAACGA GGTTTGCG	3078
6265	AACCACCU G UGACAGCU	1377	AGCTGTCA GGCTAGCTACAACGA AGGTGGTT	3079
6268	CACCUGUG A CAGCUGGC	1378	GCCAGCTG GGCTAGCTACAACGA CACAGGTG	3080
6271	CUGUGACA G CUGGCAAU	1379	ATTGCCAG GGCTAGCTACAACGA TGTCACAG	3081
6275	GACAGCUG G CAAUUUUA	1380	TAAAATTG GGCTAGCTACAACGA CAGCTGTC	3082
6278	AGCUGGCA A UUUUAUAA	1381	TTATAAAA GGCTAGCTACAACGA TGCCAGCT	3083
6283	GCAAUUUU A UAAAUCAG	1382	CTGATTTA GGCTAGCTACAACGA AAAATTGC	3084
6287	UUUUAUAA A UCAGGUAA	1383	TTACCTGA GGCTAGCTACAACGA TTATAAAA	3085
6292	UAAAUCAG G UAACUGGA	1384	TCCAGTTA GGCTAGCTACAACGA CTGATTTA	3086
6295	AUCAGGUA A CUGGAAGG	1385	CCTTCCAG GGCTAGCTACAACGA TACCTGAT	3087
6306	GGAAGGAG G UUAAACUC	1386	GAGTTTAA GGCTAGCTACAACGA CTCCTTCC	3088
6311	GAGGUUAA A CUCAGAAA	1387	TTTCTGAG GGCTAGCTACAACGA TTAACCTC	3089
6327	AAAAGAAG A CCUCAGUC	1388	GACTGAGG GGCTAGCTACAACGA CTTCTTTT	3090
6333	AGACCUCA G UCAAUUCU	1389	AGAATTGA GGCTAGCTACAACGA TGAGGTCT	3091
6337	CUCAGUCA A UUCUCUAC	1390	GTAGAGAA GGCTAGCTACAACGA TGACTGAG	3092
6344	AAUUCUCU A CUUUUUUU	1391	AAAAAAG GGCTAGCTACAACGA AGAGAATT	3093
6366	UUUUCCAA A UCAGAUAA	1392	TTATCTGA GGCTAGCTACAACGA TTGGAAAA	3094
6371	CAAAUCAG A UAAUAGCC	1393	GGCTATTA GGCTAGCTACAACGA CTGATTTG	3095
6374	AUCAGAUA A UAGCCCAG	1394	CTGGGCTA GGCTAGCTACAACGA TATCTGAT	3096
6377	AGAUAAUA G CCCAGCAA	1395	TTGCTGGG GGCTAGCTACAACGA TATTATCT	3097
6382	AUAGCCCA G CAAAUAGU	1396	ACTATITG GGCTAGCTACAACGA TGGGCTAT	3098
6386	CCCAGCAA A VAGUGAUA	1397	TATCACTA GGCTAGCTACAACGA TTGCTGGG	3099
6389	AGCAAAUA G UGAUAACA	1398	TGTTATCA GGCTAGCTACAACGA TATTTGCT	3100
6392	AAAUAGUG A UAACAAAU	1399	ATTTGTTA GGCTAGCTACAACGA CACTATTT	3101
6395	UAGUGAUA A CAAAUAAA	1400	TTTATTTG GGCTAGCTACAACGA TATCACTA	3102

6399	GAUAACAA A UAAAACCU	1401	AGGTTTTA GGCTAGCTACAACGA TTGTTATC	3103
6404	CAAAUAAA A CCUUAGCU	1402	AGCTAAGG GGCTAGCTACAACGA TTTATTTG	3104
6410	AAACCUUA G CUGUUCAU	1403	ATGAACAG GGCTAGCTACAACGA TAAGGTTT	3105
6413	CCUUAGCU G UUCAUGUC	1404	GACATGAA GGCTAGCTACAACGA AGCTAAGG	3106
6417	AGCUGUUC A UGUCUUGA	1405	TCAAGACA GGCTAGCTACAACGA GAACAGCT	3107
6419	CUGUUCAU G UCUUGAUU	1406	AATCAAGA GGCTAGCTACAACGA ATGAACAG	3108
6425	AUGUCUUG A UUUCAAUA	1407	TATTGAAA GGCTAGCTACAACGA CAAGACAT	3109
6431	UGAUUUCA A UAAUUAAU	1408	ATTAATTA GGCTAGCTACAACGA TGAAATCA	3110
6434	UUUCAAUA A UUAAUUCU	1409	AGAATTAA GGCTAGCTACAACGA TATTGAAA	3111
6438	AAUAAUUA A UUCUUAAU	1410	ATTAAGAA GGCTAGCTACAACGA TAATTATT	3112
6445	AAUUCUUA A UCAUUAAG	1411	CTTAATGA GGCTAGCTACAACGA TAAGAATT	3113
6448	UCUUAAUC A UUAAGAGA	1412	TCTCTTAA GGCTAGCTACAACGA GATTAAGA	3114
6456	AUUAAGAG A CCAUAAUA	1413	TATTATGG GGCTAGCTACAACGA CICTTAAT	3115
6459	DAGAGACC A UAAUAAAU	1414	ATTTATTA GGCTAGCTACAACGA GGTCTCTT	3116
6462	AGACCAUA A UAAAUACU	1415	AGTATTTA GGCTAGCTACAACGA TATGGTCT	3117
6466	CAUAAUAA A UACUCCUU	1416	AAGGAGTA GGCTAGCTACAACGA TTATTATG	3118
6468	UAAUAAAU A CUCCUUUU	1417	AAAAGGAG GGCTAGCTACAACGA ATTTATTA	3119
6487	AGAGAAAA G CAAAACCA	1418	TGGTTTTG GGCTAGCTACAACGA TTTTCTCT	3120
6492	AAAGCAAA A CCAUUAGA	1419	TCTAATGG GGCTAGCTACAACGA TTTGCTTT	3121
6495	GCAAAACC A UUAGAAUU	1420	AATTCTAA GGCTAGCTACAACGA GGTTTTGC	3122
6501	CCAUUAGA A UUGUUACU	1421	AGTAACAA GGCTAGCTACAACGA TCTAATGG	3123
6504	UUAGAAUU G UUACUCAG	1422	CTGAGTAA GGCTAGCTACAACGA AATTCTAA	3124
6507	GAAUUGUU A CUCAGCUC	1423	GAGCTGAG GGCTAGCTACAACGA AACAATTC	3125
6512	GUUACUCA G CUCCUUCA	1424	TGAAGGAG GGCTAGCTACAACGA TGAGTAAC	3126
6522	UCCUUCAA A CUCAGGUU	1425	AACCTGAG GGCTAGCTACAACGA TTGAAGGA	3127
6528	AAACUCAG G UUUGUAGC	1426	GCTACAAA GGCTAGCTACAACGA CTGAGTTT	3128
6532	UCAGGUUU G UAGCAUAC	1427	GTATGCTA GGCTAGCTACAACGA AAACCTGA	3129
6535	GGUUUGUA G CAUACAUG	1428	CATGTATG GGCTAGCTACAACGA TACAAACC	3130
6537	UUUGUAGC A UACAUGAG	1429	CTCATGTA GGCTAGCTACAACGA GCTACAAA	3131
6539	UGUAGCAU A CAUGAGUC	1430	GACTCATG GGCTAGCTACAACGA ATGCTACA	3132
6541	UAGCAUAC A UGAGUCCA	1431	TGGACTCA GGCTAGCTACAACGA GTATGCTA	3133
6545	AUACAUGA G UCCAUCCA	1432	TGGATGGA GGCTAGCTACAACGA TCATGTAT	3134
6549	AUGAGUCC A UCCAUCAG	1433	CTGATGGA GGCTAGCTACAACGA GGACTCAT	3135
6553	GUCCAUCC A UCAGUCAA	1434	TTGACTGA GGCTAGCTACAACGA GGATGGAC	3136
6557	AUCCAUCA G UCAAAGAA	1435	TTCTTTGA GGCTAGCTACAACGA TGATGGAT	3137
6565	GUCAAAGA A UGGUUCCA	1436	TGGAACCA GGCTAGCTACAACGA TCTTTGAC	3138
6568	AAAGAAUG G UUCCAUCU	1437	AGATGGAA GGCTAGCTACAACGA CATTCTTT	3139
6573	AUGGUUCC A UCUGGAGU	1438	ACTCCAGA GGCTAGCTACAACGA GGAACCAT	3140
6580	CAUCUGGA G UCUUAAUG	1439	CATTAAGA GGCTAGCTACAACGA TCCAGATG	3141
6586	GAGUCUUA A UGUAGAAA	1440	TTTCTACA GGCTAGCTACAACGA TAAGACTC	
6588	GUCUUAAU G UAGAAAGA	1441	TCTTTCTA GGCTAGCTACAACGA ATTAAGAC	3143
6600	AAAGAAAA A UGGAGACU	1442	AGTCTCCA GGCTAGCTACAACGA TTTTCTTT	3144
6606	AAAUGGAG A CUUGUAAU	1443	ATTACAAG GGCTAGCTACAACGA CTCCATTT	3145
6610	GGAGACUU G UAAUAAUG	1444	CATTATTA GGCTAGCTACAACGA AAGTCTCC	
6613	GACUUGUA A UAAUGAGC	1445	GCTCATTA GGCTAGCTACAACGA TACAAGTC	3147
6616	UUGUAAUA A UGAGCUAG	1446	CTAGCTCA GGCTAGCTACAACGA TATTACAA	3148
6620	AAUAAUGA G CUAGUUAC	1447	GTAACTAG GGCTAGCTACAACGA TCATTATT	3149
6624	AUGAGCUA G UUACAAAG	1448	CTTTGTAA GGCTAGCTACAACGA TAGCTCAT	3150
6627	AGCUAGUU A CAAAGUGC	1449	GCACTTTG GGCTAGCTACAACGA AACTAGCT	3151
6632	GUUACAAA G UGCUUGUU	1450	AACAAGCA GGCTAGCTACAACGA TTTGTAAC	3152
6634	UACAAAGU G CUUGUUCA	1451	TGAACAAG GGCTAGCTACAACGA ACTTTGTA	3153
6638	AAGUGCUU G UUCAUUAA	1452	TTAATGAA GGCTAGCTACAACGA AAGCACTT	3154

5642 AUGURDUC A UUARARIM 1453 TATTITA GOCTAGCTACAACGA TITATATA 3155 6651 UUARAAUA G CACUGAAA 1455 TITCAGTG GOCTAGCTACAACGA TITATATA 3157 6653 AARAURAGA C AUGARAM 1455 TITCAGTG GOCTAGCTACAACGA TATTITA 3157 6656 AARAURAGA A CUGARAM 1455 TITCAGTG GOCTAGCTACAACGA TATTITA 3157 6566 CACUGARA A UURAAUA 1457 TOTTCAG GOCTAGCTACAACGA TATTITA 3158 6566 CACUGARA A UURAAUA 1457 TOTTCAG GOCTAGCTACAACGA TATTATOT 3158 6566 CACUGARA A UURAAUA 1459 TATTCAG GOCTAGCTACAACGA TICAATTT 3160 6567 AARAURAA A CARGARUU 1458 AATTCATG GOCTAGCTACAACGA TATCATTT 3160 6568 AUUGARUA A UURACUGA 1460 TCAGTTAA GOCTAGCTACAACGA TATTCAT 3161 6576 AUUGARUA A UURACUGA 1460 TCAGTTAA GOCTAGCTACAACGA TATTCAT 3161 6576 AUUGARUA A UURACUGA 1461 TATATCAG GOCTAGCTACAACGA TATTCAT 3163 6583 ARCUGRUA A UURACUGA 1462 GAATTTA GOCTAGCTACAACGA TATCATTT 3165 6583 ARCUGRUA A UURACUCA 1463 TTGGAATA GOCTAGCTACAACGA TATCAGTT 3165 6583 ARCUGRUA A UUCCAALC 1464 GATTGGAA GOCTAGCTACAACGA TATCAGTT 3165 6581 AUURUCCA A UUUCCAALC 1464 GATTGGAA GOCTAGCTACAACGA TATCAGTT 3166 6589 ARUCHUU G CCAUUUGC 1464 GATTGGAA GOCTAGCTACAACGA TATCAGTT 3166 6589 ARUCHUU G CCAUUUGC 1466 CATGGCAA GOCTAGCTACAACGA GATTATCAG 3166 6680 ARUCHUU G CCAUUUGC 1466 CATGGCAA GOCTAGCTACAACGA GAACAATT 3167 6701 CAUUUGCCA UUUGCAA 1466 CATGGCAA GOCTAGCTACAACGA GAACAATT 3167 6702 CAUUUGCCA UUUGCAA 1466 CATGGCAA GOCTAGCTACAACGA GAACAATT 3170 6703 CAUUUGCCA UUUGCAA 1467 TATTCAG GOCTAGCTACAACGA GAACAATT 3170 6704 CAUUUGCCA UUTAGGA 1467 TATTCAG GOCTAGCTACAACGA GAACAATT 3170 6705 CAUUUGCCA UUTAGGA 1467 TATTCAG GOCTAGCTACAACGA GAACAATT 3170 6708 CAUUUGCA AUGAGAA 1477 TATTCAG GOCTAGCTACAACGA CATTATTT 3167 6708 CAUUUGCA AUGAGAA 1477 TATTCAG GOCTAGCTACAACGA CATTATTT 3167 6714 UACCAAAA A UGGUGGC 1471 GCCAACCA GOCTAGCTACAACGA CATTATTT 3170 6714 UACCAAAA A UGGUGGC 1471 GCCAACCA GOCTAGCTACAACGA CATTATTT 3170 6714 UACCAAAA A UGGUGGC 1471 GCCAACCA GOCTAGCTACAACGA CATTATTT 3170 6717 CAAAAAUG G UACACAA 1473 TOTTGTTG GOCTAGCTACAACGA ACTATTTTT 3174 6718 AAGAGAGA C CAUUACAA 1473 TOTTGTTG GOCTAGCTACAACGA ACTATTTTT 3170 6718 CAUUUGCAA	C6640		1 4 5 3	magnetical compositions on a capacit	3155
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6714 UGACAAAA A UGGUUGGC 1471 GCCAACCA GGCTAGCTACAACGA TTTTGTCA 3173 6717 CAAAAAUG G UUGGCACU 1472 AGTGCCAA GGCTAGCTACAACGA CATTTTTG 3174 6721 AAUGGUUG G CACUAACA 1473 TGTTAGTG GGCTAGCTACAACGA CATCTTTTG 3174 6723 UGGGUUGGC A CUAACAA 1473 TGTTAGTG GGCTAGCTACAACGA CAACCAT 3176 6723 UGGGUUGGC A CUAACAA 1474 TTTGTTAG GGCTAGCTACAACGA GCCAACCA 3176 6727 UGGCACUA A CAAAGAAC 1475 GTTCTTTG GGCTAGCTACAACGA TAGTGCCA 3177 6734 AACAAAGA A CGAGCACU 1476 AGTGCTCG GGCTAGCTACAACGA TCTTTGTT 3178 6738 AAGAACGA G CACUUCCU 1477 AGGAACTG GGCTAGCTACAACGA TCTTTGTT 3179 6740 GAACGAGC A CUUCCUU 1478 AAAGGAAG GGCTAGCTACAACGA TCTTTGTT 3180 6753 CUUUCAGA G UUUCUGAG 1479 CTCAGAAA GGCTAGCTACAACGA CTCAGAAA 3181 6762 UUUCUGAG A UAAUGUAC 1480 GTACATTA GGCTAGCTACAACGA CTCAGAAA 3182 6765 CUGAGAUA A UGUACGUG 1481 CACGTACA GGCTAGCTACAACGA TATTCTCA 3180 6766 CUGAGAUA A UGUACGUG 1481 CACGTACA GGCTAGCTACAACGA ATTATCTCA 3184 6767 GAGAUAAU G UACGUGGA 1482 TCCACGAA GGCTAGCTACAACGA ATTATCTC 3186 6771 UAAUGUAC G UGGAACA 1483 GTTCCACG GGCTAGCTACAACGA ACATTATC 3186 6771 UAAUGUAC G UGGAACA 1483 GTTCCACG GGCTAGCTACAACGA ACATTATC 3186 6776 GAUAGAGA A CAGUCUGG 1485 CCAGACTG GGCTAGCTACAACGA TCCACTA 3187 6779 GUGGAACA G UCUGGGUG 1486 CACCCAGA GGCTAGCTACAACGA TCCACTA 3187 6779 GUGGAACA G UCUGGGUG 1487 CCATTCCA GGCTAGCTACAACGA TCCACCTA 3187 6790 UGGGUGGA A UGGGGCUG 1488 CACCCCAG GGCTAGCTACAACGA TCCACCTA 3189 6790 UGGGUGGA A UGGGGCUG 1488 CACCCCCA GGCTAGCTACAACGA TCCACCCA 3190 6795 GGAAUGGG CUGAAACC 1489 GGTTCCAC GGCTAGCTACAACGA CCCATTCC 3191 6801 GGGCUGAA A CCAUGUGC 1490 GCACAGG GGCTAGCTACAACGA CCCATTCC 3191 6802 UGGAACCA UGUGCAG 1491 CTTTGCAC GGCTAGCTACAACGA CCCATTCC 3191 6803 AACCAUG G UGGAAGC 1499 GACACAGA GGCTAGCTACAACGA ACATGCTT 3196 6804 CUGAAACC A UGUGCAG 1491 CTTTGCAC GGCTAGCTACAACGA ACATGGTT 3196 6806 GAAACCAU G UGCCAAGUC 1492 GACTGCA GGCTAGCTACAACGA ACATGGTT 3196 6807 ACACGAG G UCUGUGU 1494 GACACAGA GGCTAGCTACAACGA ACATGGTT 3196 6808 AACCAUG G UGUCUUGU 1494 GACACAGA GGCTAGCTACAACGA ACATGGTT 3196 6808 AACCAUG G UGUCUUGU 1495 ACAGACAG GGCTAGCTACAACGA ACATGGT	6705		1469		3171
6717 CAAAANUG G UUGGCACU 1472 AGTGCCAA GGCTAGCTACAACGA CATTTTTG 3174 6721 AAUGGUUG G CACUAACA 1473 TGTTAGTG GGCTAGCTACAACGA CAACCAT 3175 6723 UGGUUGGC A CUAACAAA 1474 TTTGTTAG GGCTAGCTACAACGA CAACCACA 3176 6727 UGGCACUA A CAAAGAAC 1475 GTTCTTTG GGCTAGCTACAACGA CAACCACA 3176 6727 UGGCACUA A CAAAGAAC 1476 AGTGCTCA GGCTAGCTACAACGA TAGTGCCA 3177 6738 AACAAAGAA CGAACCAU 1476 AGTGCCAG GGCTAGCTACAACGA TCTTTGTT 3178 6738 AAGAACGA G CACUUCCU 1477 AGGAAGTG GGCTAGCTACAACGA TCTTTGTT 3179 6740 GAACGAGC A CUUCCUUU 1478 AAAGGAAG GGCTAGCTACAACGA TCTGTATAG 6753 CUUUCUGAG G UUUCUGAG 1479 CTCAGAAA GGCTAGCTACAACGA GCTCGTTC 3180 6753 CUUUCUGAG A UAAUGUAC 1480 GTCAGTACA GGCTAGCTACAACGA CTCGAAAA 3181 6762 UUUCUGAG A UAAUGUAC 1480 GTCAGTACA GGCTAGCTACAACGA CTCAGAAAA 3182 6765 CUGAGAAUA G GUACGUGA 1481 CACGTACA GGCTAGCTACAACGA TATTCTCA 3183 6767 GAGAUAAU G UACGUGGA 1482 TCCACGTA GGCTAGCTACAACGA TATTCTCA 3184 6769 GAUAAUGU A CGUGGAAC 1483 GTTCCACG GGCTAGCTACAACGA TATTCTCC 3186 6771 UAAUGUAC C UGGAACA 1484 CTCTACCACG GGCTAGCTACAACGA ACATTATC 3185 6771 UAAUGUAC C UGGAACA 1484 CTCTTCCA GGCTAGCTACAACGA CATTATC 3186 6776 UACGUGGA A CAGUCUG 1485 CTCACACGA GGCTAGCTACAACGA TCCACGTA 3187 6785 CAGUCUGG G UGGAAUG 1486 CACCCAGA GGCTAGCTACAACGA TCCACGTA 3187 6790 UGGGACGA A UGUGGGUG 1488 CACCCAGA GGCTAGCTACAACGA TCCACCTA 3189 6790 UGGGUGGA A UGGGCUG 1488 CAGCCCCA GGCTAGCTACAACGA TCCACCCA 3190 6795 GGAAUGGG CUGAAACC 1489 GGTTACCTACAACGA TCCACCCA 3190 6795 GGAAUGGG G CUGAAACC 1489 GGTTCCA GGCTAGCTACAACGA TCCACCCA 3190 6806 GAAACCAU G UGCAGGUC 1490 GCACATGG GGCTAGCTACAACGA TCCACCCA 3190 6807 GGCUGGA A CCAUGUGC 1491 CTTCCAC GGCTAGCTACAACGA TCCACCCA 3192 6808 AACCAUGU G UGCAGGUC 1492 GACATGG GGCTAGCTACAACGA TCCACCCA 3192 6809 AACCAUGU G UGCAGCU 1491 CTTCCACA GGCTAGCTACAACGA ACAGTTTCC 3194 6806 GAAACCAU G UGCAAGGU 1491 CTTCCACA GGCTAGCTACAACGA ACAGTTTCC 3194 6816 GCAAGUCU G UGCAGGAC 1491 CTTCCACA GGCTAGCTACAACGA ACAGTTTCC 3196 6817 AUGUGCAA G UCUAGAAC 1491 CTTCCACA GGCTAGCTACAACGA ACAGTTTCC 3196 6820 UCUAAAGA G UCUAGAGA 1492 CACACGA GGCTAGCTACAACGA ACAGAC	6708		1470	<u> </u>	3172
6721 AAUGGUUG G CACUAACA 1473 TGTTAGTG GGCTAGCTACAACGA CAACCATT 3175 6723 UGGUUGGC A CUAACAAA 1474 TTTGTTAG GGCTAGCTACAACGA GCCAACCA 3176 6727 UGGCACUA A CAAAGAAC 1475 GTTCTTTG GGCTAGCTACAACGA GCCAACCA 3176 6728 AACAAAGA A CGAAGCACU 1476 AGTGCTCG GGCTAGCTACAACGA TAGTGCCCA 3177 6734 AACAAAGA A CGAGCACU 1477 AGGAACTG GGCTAGCTACAACGA TCTTTTGTT 3179 6738 AAGGAACGA G CACUUCCUUU 1478 AGAGACTG GGCTAGCTACAACGA TCTTTTTT 3179 6740 GAACGAGC A CUUCCUUU 1478 AAAGGAAG GGCTAGCTACAACGA CCTTTCTT 3179 6753 CUUUCAGA G UUUCUGAS 1479 CTCAGAAA GGCTAGCTACAACGA CTCTGTAAA 3181 6765 CUUUCAGA A UGAAUGUAC 1480 GTACATTA GGCTAGCTACAACGA TCTGAAAA 3181 6766 CUUUCUGAG A UGAAUGUAC 1480 GTACATTA GGCTAGCTACAACGA TCTGAAAA 3181 6767 GAGAUAAU G UUACGUGGA 1482 TCCACGTA GGCTAGCTACAACGA TATTCTCAG 3183 6767 GAGAUAAU G UACGUGGA 1483 GTTCCACG GGCTAGCTACAACGA ACTATTCTCAG 3186 6776 UACGUGGA A CAGUCUGG 1483 GTTCCACG GGCTAGCTACAACGA ACTATTC 3185 6771 UAAUGUAC G UGGAACAG 1484 CTGTTCCA GGCTAGCTACAACGA ACTATTC 3186 6776 UACGUGGA A CAGUCUGG 1485 CCACCACGA GGCTAGCTACAACGA TCACCATTA 3186 6779 GUGGAACA G UCUGGGU 1486 CACCCAGA GGCTAGCTACAACGA TCCACCTA 3186 6785 CAGUCUGG G UGGAAUGG 1488 CAGCCCCA GGCTAGCTACAACGA TCCACCTA 3186 6785 CAGUCUGG G UGGAAUGG 1488 CAGCCCCA GGCTAGCTACAACGA TCCACCTA 3189 6790 UGGGUGGA A UGGGGCU 1488 CAGCCCCA GGCTAGCTACAACGA TCCACCCA 3190 6795 GGAAUGGG G CUGAAACC 1489 GGTTTCCA GGCTAGCTACAACGA TCCACCCA 3190 6795 GGAAUGGG CUGAAACC 1489 GGTTTCCA GGCTAGCTACAACGA TCCACCCA 3190 6801 GGGCUGAA A CAUUGUGU 1491 CTTGCACA GGCTAGCTACAACGA TCCACCCA 3192 6804 CUGAAACC A UGUGGAGU 1492 GACATGG GGCTAGCTACAACGA TCCACCCA 3192 6806 GAAACCAU G UGCAGGU 1493 CAGACTG GGCTAGCTACAACGA ACATGTTT 3194 6806 GAAACCAU G UGCAAGUC 1499 GACATGG GGCTAGCTACAACGA ACATGTT 3195 6816 GCAAGUCU G UGCAAGUC 1491 CTTGCACA GGCTAGCTACAACGA ACATGTT 3196 6817 AUGUGACA G UGCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA ACATGTT 3196 6818 AACCAUGU G UGCAAGAA 1499 CTGCACAGA GGCTAGCTACAACGA ACATGTT 3196 6823 UGUUGUU G UCAAGUCA 1499 CGCACGAG GGCTAGCTACAACGA ACATGTT 3199 6823 UGUUGUU G UCAAGACA 1499 CGGTAGCTACAACG	6714	UGACAAAA A UGGUUGGC	1471	GCCAACCA GGCTAGCTACAACGA TTTTGTCA	3173
6723 UGGUUGGC A CUAACAAA 1474 TTTGTTAG GGCTAGCTACAACGA GCCAACCA 3176 6727 UGGCACUA A CAAAGAAC 1475 GTTCTTTG GGCTAGCTACAACGA TAGTGCCA 3177 6734 AACAAAGA A CGAGCACU 1476 AGTGCTCG GGCTAGCTACAACGA TCTTTGTT 3178 6738 AAGAACGA G CACUUCCU 1477 AGGAAGTG GGCTAGCTACAACGA TCTTTGTT 3179 6738 AAGAACGA C CUUCCUUU 1478 AAAGGAAG GGCTAGCTACAACGA CTCTTTGTT 3179 6740 GAACGAGC A CUUCCUUU 1478 AAAGGAAG GGCTAGCTACAACGA GCTCGTTC 3180 6753 CUUUCAGA G UUUCUGAG 1479 CTCAGAAA GGCTAGCTACAACGA GCTCGTTC 3180 6762 UUUCUGAG A UAAUGUAC 1480 GTACATTA GGCTAGCTACAACGA CTCAGAAA 3182 6765 CUGAGAUAA U UGUACGG 1481 CACGTACA GGCTAGCTACAACGA CTCAGAAA 3182 6766 GAGAUAAU G UACGUGGA 1482 TCCACGTA GGCTAGCTACAACGA TATCTCAG 3183 6767 GAGAUAAU G UACGUGGA 1482 TCCACGTA GGCTAGCTACAACGA ACATTATCT 3186 6769 GAUAAUGU A CGUGGAAC 1483 GTTCCACG GGCTAGCTACAACGA ACATTATCT 3185 6771 UAAUGUAC G UGGAACG 1484 CTCTTCCAC GGCTAGCTACAACGA ACATTATC 3186 6776 UACGUGGA A CAGUCUGG 1486 CTCTTCCA GGCTAGCTACAACGA ACATTATA 3186 6776 UACGUGGA C UCUGGGUG 1486 CCACCCAG GGCTAGCTACAACGA ACATTATA 3186 6785 CAGUCUGG G UGGAAUGG 1487 CCATTCCA GGCTAGCTACAACGA TCCACGTA 3187 6790 UGGGUGGA A UGGGGCUG 1486 CACCCAGA GGCTAGCTACAACGA TCCACGTA 3186 6795 UGGGUGGA A UGGGGCUG 1487 CCATTCCA GGCTAGCTACAACGA CCAGACTG 3188 6795 GGAAUGGG G CUGAAACC 1489 GGTTTCCAG GGCTAGCTACAACGA CCCATCCC 3191 6801 GGGCUGAA A CCAUGUGC 1489 GGTTTCCAG GGCTAGCTACAACGA CCCATCCC 3191 6804 CUGAAACC A UGUGCAG 1491 CTTGCAC GGCTAGCTACAACGA TCCACCA 3190 6806 GAAACCAU G UGCAAGC 1492 GACTTGCA GGCTAGCTACAACGA ACGACTTC 3191 6806 GAAACCAU G UGCAAGC 1492 GACTTGCA GGCTAGCTACAACGA ACGACTT 3194 6806 GAAACCAU G UGCAAGC 1492 GACTTGCA GGCTAGCTACAACGA ACGACTT 3196 6812 AUGUGCAA G UCUUGUC 1494 GACACAGA GGCTAGCTACAACGA ACGACTT 3196 6813 AACCAUGU G UCUUGUC 1494 GACACAGA GGCTAGCTACAACGA ACGACTT 3196 6814 AAGUCUGU G UCCAAGAA 1495 TGACACGA GGCTAGCTACAACGA ACGACTT 3196 6823 UCUUGUCA G UCCAAGAA 1496 TGACACGA GGCTAGCTACAACGA ACGACTT 3196 6823 UCUUGUCA G UCCAAGAA 1497 TGGACTGA GGCTAGCTACAACGA ACGACTT 3196 6826 AACCAUGU G UCCAAGAA 1497 TGGACTGA GGCTAGCTACAACGA	6717	CAAAAAUG G UUGGCACU	1472	AGTGCCAA GGCTAGCTACAACGA CATTTTTG	3174
6727 UGGCACUA A CAAAGAAC 1475 GTTCTTTG GGCTAGCTACAACGA TAGTGCCA 3177 6734 AACAAAGA A CGAGCACU 1476 AGTGCTCG GGCTAGCTACAACGA TCTTTGTT 3178 6738 AAGAACGA G CACUUCCU 1477 AGGAAGTG GGCTAGCTACAACGA TCTTTGTT 3179 6740 GAACCAGC A CUUCCUU 1478 AAAGGAAG GGCTAGCTACAACGA TCGTTCTT 3189 6753 CUUUCAGA G UUUCUGAG 1479 CTCAGAAA GGCTAGCTACAACGA CTCGTACA 6753 CUUUCUGAG A UAUCUGAG 1480 GTACATTA GGCTAGCTACAACGA CTCGAAAA 3181 6765 CUUGAGAUA A UGUACGUG 1481 CACGTACA GGCTAGCTACAACGA CTCAGAAA 3182 6766 CUUGAGAUA UAUGUAC 1480 GTACATTA GGCTAGCTACAACGA CTCAGAAA 3182 6767 GAGAUAAU G UACGUGGA 1482 TCCACGTA GGCTAGCTACAACGA ATTATCTC 3184 6769 GAUAAUGU A CGUGGAAC 1483 GTTCCACG GGCTAGCTACAACGA ATTATCTC 3185 6771 UAAUGUAC G UGGGAACG 1484 CTGTTCCA GGCTAGCTACAACGA ATTATCT 3186 6776 UACGUGGA A CAGUCUGG 1484 CTGTTCCA GGCTAGCTACAACGA TCACACTA 3187 6779 GUGGAACA G UCUGGGUG 1486 CCACCAGA GGCTAGCTACAACGA TCCACGTA 3187 6785 CAGUCUGG G UGGAAUGG 1487 CCATTCCA GGCTAGCTACAACGA TCCACGTA 3188 6780 UGGGUGGA A UGGGGCUG 1488 CACCCAGA GGCTAGCTACAACGA TCCACCCA 3190 6790 UGGGUGGA A UGGGGCUG 1488 CAGCCCCA GGCTAGCTACAACGA TCCACCCA 3190 6795 GGAAUGGG CUGAAACC 1489 GGTTTCAG GGCTAGCTACAACGA TCCACCCA 3190 6795 GGAAUGGG CUGAAACC 1489 GGTTTCAG GGCTAGCTACAACGA TCCACCCA 3191 6800 GGCUGAA A CCAUGUGC 1490 GCACATGG GGCTAGCTACAACGA TCCACCCA 3191 6801 GGCUGAA A CCAUGUGC 1490 GCACATGG GGCTAGCTACAACGA TCCACCCA 3192 6804 CUGAAACC A UGUGCAGUC 1492 GACTTGCA GGCTAGCTACAACGA ACGTTTCAG 3193 6806 GAAACCAUG G GCAAGUCUG 1491 CTTGCACA GGCTAGCTACAACGA ACGTTTCAG 3193 6816 GCAAGUCUG UGCAGUC 1492 GACTTGCA GGCTAGCTACAACGA ACGTTTCAG 3196 6817 ACCAUGU G UGCAUGUC 1491 GACACAGA GGCTAGCTACAACGA ACATGGTT 6818 AAGUCUGU G UCUUGUC 1494 GACACAGA GGCTAGCTACAACGA ACATGGTT 6818 AAGUCUGU G UCUUGUC 1494 GACACAGA GGCTAGCTACAACGA ACATGGTT 6818 AAGUCUGU G UCUUGUC 1495 CAGGTAGCTACAACGA ACATGGTT 6818 AAGUCUGU G UCCAGAAA 1498 TCCTTGCA GGCTAGCTACAACGA ACATGTT 7196 6823 UGUGUCUU G UCCAGAAA 1496 TGCACATG GGCTAGCTACAACGA ACATGTT 7198 6826 UCCAAGAA G UCCAGGAA 1499 CGGTGTCA GGCTAGCTACAACGA ACATGTT 7198 6827 UCUUGAA G UCCAG	6721	AAUGGUUG G CACUAACA	1473	TGTTAGTG GGCTAGCTACAACGA CAACCATT	3175
6734 AACAAAGA A CGAGCACU 1476 AGTGCTCG GGCTAGCTACAACGA TCTTTGTT 3178 6738 AAGAACGA G CACUUCCU 1477 AGGAAGTG GGCTAGCTACAACGA TCTTTGTT 3179 6740 GAACGAGC A CUUCCUUU 1478 AAAGGAAG GGCTAGCTACAACGA CTCGTTCT 3180 6753 CUUUCAGA G UUUCUGAG 1479 CTCAGAAA GGCTAGCTACAACGA CTCGTACA 3181 6753 CUUUCUGAG A UAAUGUAC 1480 GTACATTA GGCTAGCTACAACGA TCTGAAAG 3181 6762 UUUCUGAG A UAAUGUAC 1480 GTACATTA GGCTAGCTACAACGA TCTGAAAG 3182 6765 CUGAGANA A UGUACGUG 1481 CACGTACA GGCTAGCTACAACGA TCTCAGAA 3182 6767 GAGAUAAU G UACGUGGA 1482 TCCACGTA GGCTAGCTACAACGA ATTATCTC 3184 6769 GANAAUGU A CGUGGAAC 1483 GTTCCACG GGCTAGCTACAACGA ATTATCTC 3185 6771 UAAUGUAC G UGGAACG 1484 CTGTTCCA GGCTAGCTACAACGA ATTATCT 3185 6776 UACGUGGA A CAGUCUGG 1485 CCAGACTG GGCTAGCTACAACGA TCCACTA 3186 6776 GAGGUGA A CAGUCUGG 1485 CCAGACTG GGCTAGCTACAACGA TCCACCTA 3187 6779 GUGGAACA G UCUGGGUG 1486 CACCCAGA GGCTAGCTACAACGA TCTCCACTA 3187 6789 CAGUCUGG UGGAAUGG 1487 CCATTCCA GGCTAGCTACAACGA TCTCCCCCA 3189 6780 UGGGUGGA A UGGGGUG 1488 CACCCCAG GGCTAGCTACAACGA TCCACCCA 3189 6791 UGGGUGGA A UGGGGUG 1488 CAGCCCCA GGCTAGCTACAACGA CCAGACTG 3189 6792 GGAAUGG G CUGAAACC 1489 GGTTTCCA GGCTAGCTACAACGA TCCACCCA 3190 6795 GGAAUGG G CUGAAACC 1489 GGTTTCAG GGCTAGCTACAACGA TCCACCCA 3190 6795 GGAAUGG G CUGAAACC 1489 GGTTTCAG GGCTAGCTACAACGA TCCACCCA 3191 6804 CUGAAACC A UGUGCAG 1490 GCACATG GGCTAGCTACAACGA TCCACCCA 3192 6804 CUGAAACC A UGCAAGUC 1499 GCACATG GGCTAGCTACAACGA ACGTTCC 3191 6806 GAAACCAU GUCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ACGTTCT 3194 6807 GAACCAU GUCAAGUC 1493 CAGACTTG GGCTAGCTACAACGA ACGTTTCA 3195 6812 AUGUGCAA G UCUGUUC 1494 GACACAGA GGCTAGCTACAACGA ACGTGTT 3195 6813 AACCAUGU G UGCAGUCA 1497 TGGACTAG GGCTAGCTACAACGA ACGTGTT 3196 6814 AAGUCUGU G UCCAGACA 1497 TGGACTAG GGCTAGCTACAACGA ACGACTT 3198 6823 UGUGUCUU G UCCAGAAA 1498 TTCTTGGA GGCTAGCTACAACGA ACGACTT 3198 6823 UGUGUCUU G UCCAGACA 1497 TGGACTAG GGCTAGCTACAACGA ACGACTT 3198 6823 UGUGUCUU G UCCAGACA 1497 TGGACTAG GGCTAGCTACAACGA ACGACTT TCTTGGA 6839 AACAGAGA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA TTCTTGGA 320	6723	UGGUUGGC A CUAACAAA	1474	TTTGTTAG GGCTAGCTACAACGA GCCAACCA	3176
6738 AAGAACGA G CACUUCCU 1477 AGGAAGTG GGCTAGCTACAACGA TCGTTCTT 3179 6740 GAACGAGC A CUUCCUUU 1478 AAAGGAAG GGCTAGCTACAACGA GCTCGTTC 3180 6753 CUUUCAGA G UUUCUGAG 1479 CTCAGAAA GGCTAGCTACAACGA TCTGAAAG 3181 6762 UUUCUGAG A UAAUGUAC 1480 GTACATTA GGCTAGCTACAACGA TCTGAAAA 3182 6765 CUGAGAAIA A UGUACGUG 1481 CACGTACA GGCTAGCTACAACGA TCTCAGAAA 3183 6767 GAGAUAAU G UACGUGGA 1482 TCCACGTA GGCTAGCTACAACGA ATTACTCAG 3183 6767 GAGAUAAU G UACGUGGA 1483 GTTCCACG GGCTAGCTACAACGA ATTACTC 3184 6769 GAUAAUGU A CGUGGAAC 1483 GTTCCACG GGCTAGCTACAACGA ACTTATC 3185 6771 UAAUGUAC G UGGAACCA 1485 CCCAGATA GGCTAGCTACAACGA ACTTATC 3186 6776 UACGUGGA A CAGUCUGG 1485 CCAGACTA GGCTAGCTACAACGA ACTTATC 3187 6779 GUGGAACA G UCUGGGUG 1485 CACCCAGA GGCTAGCTACAACGA TCCACGTA 3187 6785 CAGUCUGG G UGGAAUGG 1487 CCACTCCA GGCTAGCTACAACGA TCCACGTA 3189 6786 CAGUCUGG G UGGAAUGG 1487 CCATTCCA GGCTAGCTACAACGA TCCACCCA 3189 6790 UGGGUGGA A UGGGGCUG 1488 CAGCCCCA GGCTAGCTACAACGA TCCACCCA 3190 6795 GGAAUGGG CUGAAACC 1489 GGTTTCAG GGCTAGCTACAACGA TCCACCCA 3190 6801 GGGCUGAA A CCAUGUGC 1490 GCACATGG GGCTAGCTACAACGA TCCACCCA 3191 6801 GGGCUGAA CCAUGUGC 1490 GCACATGG GGCTAGCTACAACGA TCCACCCA 3192 6804 CUGAAACCA UGUGCAAG 1491 CTTGCACA GGCTAGCTACAACGA ATCTGTCC 3192 6806 GAAACCAU G UGCAAGUC 1492 GACCTTGCA GGCTAGCTACAACGA ATCGTTTC 3194 6808 AACCAUGU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ATGGTTTC 3194 6808 AACCAUGU G UGCAAGUC 1494 GACACAGA GGCTAGCTACAACGA ATGGTTTC 3196 6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA ACATGGTT 3196 6813 AAGUCUGU G UCCAAGAA 1495 TGACACAG GGCTAGCTACAACGA ACATGGTT 3196 6827 UCUUGUCA G UCCAAGAA 1497 TGACCAGA GGCTAGCTACAACGA ACAGACTT 3196 6828 AAGACAAU G UGCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA ACAGACTT 3196 6829 UCUGUCUA G UCCAAGAA 1497 TGACCAGG GGCTAGCTACAACGA ACAGACTT 3196 6821 UGUGUCUU G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA ACAGACTT 3197 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA ACAGACTT 3196 6829 AAGAAGUG A CCCGAGAA 1499 CGGTGTCA GGCTAGCTACAACGA ACAGACTT 3200 6839 AAGAAGUG A CCCGAGAA 1499 CGGTGTCA GGCTAGCTACA	6727	UGGCACUA A CAAAGAAC	1475	GTTCTTTG GGCTAGCTACAACGA TAGTGCCA	3177
6740 GAACGAGC A CUUCCUUU 1478 AAAGGAAG GGCTAGCTACAACGA GCTCGTTC 3180 6753 CUUUCAGA G UUUCUGAG 1479 CTCAGAAA GGCTAGCTACAACGA TCTGAAAG 3181 6762 UUUCUGAG A UAAUGUAC 1480 GTACATTA GGCTAGCTACAACGA TCTGAAAA 3182 6765 CUGAGAIA A UGUACGUG 1481 CACGTACA GGCTAGCTACAACGA TATCTCAG 3183 6767 GAGAUAAU G UACGUGGA 1482 TCCACGTA GGCTAGCTACAACGA ATTATCTC 3184 6769 GAUAAUGU A CGUGGAC 1483 GTTCCACG GGCTAGCTACAACGA ACATTATC 3185 6771 UAAUGUAC G UGGAACAG 1484 CTGTTCCA GGCTAGCTACAACGA ACATTATC 3186 6771 UAAUGUAC G UGGAACAG 1485 CCAGACTG GGCTAGCTACAACGA ACATTATC 3186 6776 UACGUGGA A CAGUCUG 1485 CCAGACTG GGCTAGCTACAACGA TCCACCTA 3187 6779 GUGGAACA G UCUGGGUG 1486 CCACCCAGA GGCTAGCTACAACGA TCCACCTA 3187 6785 CAGUCUGG G UGGAAUGG 1487 CCATTCCA GGCTAGCTACAACGA TCCACCTA 3189 6790 UGGGUGGA A UGGGGCUG 1488 CAGCCCCA GGCTAGCTACAACGA TCCACCCA 3190 6795 GGAAUGGG CUGAAACC 1489 GGTTTCAG GGCTAGCTACAACGA TCCACCCA 3190 6795 GGAAUGGG CUGAAACC 1489 GGTTTCAG GGCTAGCTACAACGA TCCACCCA 3190 6801 GGGCUGAA A CCAUGUGC 1490 GCACATGG GGCTAGCTACAACGA CCCATTCC 3191 6801 GGGCUGAA A CCAUGUGC 1490 GCACATGG GGCTAGCTACAACGA TCCACCCA 3193 6806 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ACTGGTT 3193 6806 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ACTGGTT 3194 6808 AACCAUGU G UGCAAGUC 1493 CAGACTTG GGCTAGCTACAACGA ACATGGTT 3195 6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA ACATGGTT 3196 6816 GCAAGUCU G UGUCUUGU 1495 ACAAGAC GGCTAGCTACAACGA ACATGGTT 3196 6817 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA ACATGGTT 3196 6818 AAGUCUGU G UGUUCUUGU 1495 ACAAGAC GGCTAGCTACAACGA ACAGACTT 3196 6823 UGUGUCUU G UCCAAGAA 1497 TGGACAGA GGCTAGCTACAACGA ACAGACTT 3197 6819 AAGAGUGA G UCUGAGCCA 1497 TGGACAGA GGCTAGCTACAACGA ACAGACTT 3196 6820 UGUGUCUU G UCCAAGGA 1497 TGGACAGA GGCTAGCTACAACGA ACAGACTT 3197 6811 AAGUCUGU G UCCAAGGA 1497 TGGACAGA GGCTAGCTACAACGA ACAGACTT 3197 6812 AUGUGCUU G UCCAAGGA 1497 TGGACTAG GGCTAGCTACAACGA ACAGACTT 3199 6821 UCUUGUCA G UCCAAGGA 1498 TTCTTGGA GGCTAGCTACAACGA ACAGACT 3199 6822 UCUUGUCA G UCCAAGGA 1590 TGCTGTGA GGCTAGCTACAACG	6734	AACAAAGA A CGAGCACU	1476	AGTGCTCG GGCTAGCTACAACGA TCTTTGTT	3178
CUUUCAGA G UUUCUGAG 1479 CTCAGAAA GGCTAGCTACAACGA TCTGAAAG 3181 6762 UUUCUGAG A UAAUGUAC 1480 GTACATTA GGCTAGCTACAACGA CTCAGAAA 3182 6765 CUGAGAUAA UGUACGUG 1481 CACGTACA GGCTAGCTACAACGA TATCTCAG 3183 6767 GAGAUAAU G UACGUGGA 1482 TCCACGTA GGCTAGCTACAACGA ATTATCTC 3184 6769 GAUAAUGU A CGUGGAAC 1483 GTTCCACG GGCTAGCTACAACGA ACATTATC 3185 6771 UAAUGUAC G UGGAACAG 1484 CTGTTCCA GGCTAGCTACAACGA ACATTATC 3186 6776 UACGUGGA A CAGUCUGG 1485 CCAGACTG GGCTAGCTACAACGA GTACATTA 3186 6776 UACGUGGA C ACGUCUGG 1485 CCAGACTG GGCTAGCTACAACGA TCCACGTA 3187 6779 GUGGACA G UCUGGGUG 1486 CACCCAGA GGCTAGCTACAACGA TCCACGTA 3189 6785 CAGUCUGG G UGGAAUGG 1487 CCATTCCA GGCTAGCTACAACGA TCCACCCA 3189 6790 UGGGUGGA A UGGGGCUG 1488 CAGCCCCA GGCTAGCTACAACGA CCAGACTG 3189 6790 UGGGUGGA A UGGGGCUG 1489 GGTTTCAG GGCTAGCTACAACGA TCCACCCA 3190 6795 GGAAUGGG G CUGAAACC 1489 GGTTTCAG GGCTAGCTACAACGA TCCACCCA 3191 6801 GGGCUGAA A CCAUGUGC 1490 GCACATGG GGCTAGCTACAACGA TCCACCCA 3191 6804 CUGAAACC A UGUGCAAG 1491 CTTGCACA GGCTAGCTACAACGA TCCACCCA 3192 6804 CUGAAACCA UGUGCAAG 1491 CTTGCACA GGCTAGCTACAACGA ATGGTTC 3194 6808 AACCAUGU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ATGGTTC 3194 6808 AACCAUGU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ACATGGTT 3194 6818 AACCAUGU G UGUGUUGU 1494 GACACGA GGCTAGCTACAACGA ACATGGTT 3196 6816 GCAAGUCU G UGUUGUC 1495 ACAAGACA GGCTAGCTACAACGA ACATGGTT 3196 6816 GCAAGUCU G UCUUGUCA 1496 TGACAAGA GGCTAGCTACAACGA ACAGCTTGC 3197 6818 AAGUCUGU G UCUGUGU 1495 ACAAGACA GGCTAGCTACAACGA ACAGCTTG 3197 6818 AAGUCUGU G UCUGUGUC 1496 TGACAAGA GGCTAGCTACAACGA ACAGCTTG 3198 6827 UCUUGUCA G UCUGAGAC 1497 TGGACTG GGCTAGCTACAACGA ACAGCACA 3199 6827 UCUUGUCA G UCUGAGAA 1498 TTCTTGGA GGCTAGCTACAACGA ACAGCACA 3199 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA ACAGCACA 3199 6836 UCCAAGAA G UGACCCC 1499 CGGTGTCA GGCTAGCTACAACGA ACAGCACTA 3200 6837 AAGAAGUG A CACCGAGA 1590 CGGTGTCA GGCTAGCTACAACGA ACAGCACTTCTT 3202 6841 GAAGUGAC A CCCGAGAU 1501 CATCTCGG GGCTAGCTACAACGA CCCTTTCT 3203 6847 ACACCGAG A UGUUAAUU 1503 AAAATTAA GGCTAGCTACAACGA	6738	AAGAACGA G CACUUCCU	1477	AGGAAGTG GGCTAGCTACAACGA TCGTTCTT	3179
6762 UUUCUGAG A UAAUGUAC 1480 GTACATTA GGCTAGCTACAACGA CTCAGAAA 3182 6765 CUGAGAUA A UGUACGUG 1481 CACGTACA GGCTAGCTACAACGA TATCTCAG 3183 6767 GAGAUAAU G UACGUGGA 1482 TCCACGTA GGCTAGCTACAACGA ATTATCTC 3184 6769 GAUAAUGU A CGUGGAAC 1483 GTTCCACG GGCTAGCTACAACGA ACATTATC 3185 6771 UAAUGUAC G UGGAACAG 1484 CTGTTCCA GGCTAGCTACAACGA ACATTATC 3186 6776 UACGUGGA A CAGUCUGG 1485 CCAGACTG GGCTAGCACACGA GTACATTA 3186 6776 UACGUGGA A CAGUCUGG 1485 CCAGACTG GGCTAGCACACGA TCCACGTA 3187 6779 GUGGAACA G UCUGGGUG 1486 CACCCAGA GGCTAGCACACGA TCCACGTA 3187 6785 CAGUCUGG G UGGAAUGG 1487 CCATTCCA GGCTAGCACACGA TCCACCCA 3189 6790 UGGGUGGA A UGGGGCUG 1488 CAGCCCCA GGCTAGCACACGA TCCACCCA 3190 6795 GGAAUGGG G CUGAAACC 1489 GGTTTCAG GGCTAGCACACGA TCCACCCA 3191 6801 GGGCUGAA A CCAUGUGC 1490 GCACATGG GGCTAGCACACGA TCCACCCA 3192 6804 CUGAAACC A UGUGCAAG 1491 CTTGCACA GGCTAGCTACAACGA TCCACCCA 3193 6806 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ATCGTTCAG 3193 6806 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ATCGTTTC 3194 6808 AACCAUGU G CAAGUCU 1493 CAGACTTG GGCTAGCTACAACGA ATCGTTTC 3194 6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA ACATGGTT 3195 6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA ACATGGTT 3196 6816 GCAAGUCU G UGUCUUGU 1495 CAGACTTG GGCTAGCTACAACGA ACATGGTT 3196 6817 UCUUGUCA G UCUGUCCA 1496 TGACAAGA GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTAG GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTAG GGCTAGCTACAACGA ACAGACTT 3198 6824 UCUAAGAA G UCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA ACAGACTT 3198 6826 UCCAAGAA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA ACAGACTT 3198 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA ACAGACTT 3198 6828 UGUGUCUU G UCAGUCCA 1499 CGGTGTCA GGCTAGCTACAACGA ACAGACTT 3202 6849 AAGAAGAG A CCCGAGAA 1500 TCTCGGTG GGCTAGCTACAACGA ACGACTTCTT 3202 6840 ACCGAGAU G UUAAUUUU 1500 AAAATTAA GGCTAGCTACAACGA ACCTTCTT 3203	6740	GAACGAGC A CUUCCUUU	1478	AAAGGAAG GGCTAGCTACAACGA GCTCGTTC	3180
6765 CUGAGALIA A UGUACGUG 1481 CACGTACA GGCTAGCTACAACGA TATCTCAG 3183 6767 GAGAUAAU G UACGUGGA 1482 TCCACGTA GGCTAGCTACAACGA ATTATCTC 3184 6769 GAUAAUGU A CGUGGAAC 1483 GTTCCACG GGCTAGCTACAACGA ACATTATC 3185 6771 UAAUGUAC G UGGAACAG 1484 CTGTTCCA GGCTAGCTACAACGA ACATTATC 3186 6776 UACGUGGA A CAGUCUGG 1485 CCAGACTG GGCTAGCTACAACGA GTACATTA 3186 6776 UACGUGGA A CAGUCUGG 1485 CCAGACTG GGCTAGCTACAACGA TCCACGTA 3187 6779 GUGGAACA G UCUGGGUG 1486 CACCCAGA GGCTAGCTACAACGA TGTTCCAC 3188 6785 CAGUCUGG G UGGAAUGG 1487 CCATTCCA GGCTAGCTACAACGA TGTTCCAC 3189 6790 UGGGUGGA A UGGGGCUG 1488 CAGCCCCA GGCTAGCTACAACGA TCCACCCA 3190 6795 GGAAUGGG G CUGAAACC 1489 GGTTTCAG GGCTAGCTACAACGA TCCACCCA 3191 6801 GGGCUGAA A CCAUGUGC 1490 GCACATGG GGCTAGCTACAACGA TCCACCCA 3192 6804 CUGAAACC A UGUGCAAG 1491 CTTGCACA GGCTAGCTACAACGA TTCAGCCC 3192 6805 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ACGGTTTCCA 3193 6806 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ACGTGTTTCAG 3193 6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA ACATGGTTT 6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA ACATGGTT 6814 AAGUCUGU G UCUGUUGU 1495 ACAAGACA GGCTAGCTACAACGA ACAGACTT 3196 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTAG GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTAG GGCTAGCTACAACGA ACAGACTT 3198 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA ACAGACTT 3198 6828 UGUGUCUU G UCAGUCCA 1497 TGGACTGA GGCTAGCTACAACGA ACAGACTA 3199 6829 AAGAAGUG A CACCGAGA 1500 TCTCGGTG GGCTAGCTACAACGA ACGACTT 3202 6841 GAAGUCAC A CCGAGAA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUCAC A CCGAGAA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6847 ACACCGAG A UGUUAAUUU 1500 AAATTAACA GGCTAGCTACAACGA ACCTTCTT 3203 6849 ACCGAGAU G UUAAUUUU 1500 AAATTAACA GGCTAGCTACAACGA ACCTTCTT 3203	6753	CUUUCAGA G UUUCUGAG	1479	CTCAGAAA GGCTAGCTACAACGA TCTGAAAG	3181
6767 GAGAUAAU G UACGUGGA 1482 TCCACGTA GGCTAGCTACAACGA ATTATCTC 3184 6769 GAUAAUGU A CGUGGAAC 1483 GTTCCACG GGCTAGCTACAACGA ACATTATC 3185 6771 UAAUGUAC G UGGAACAG 1484 CTGTTCCA GGCTAGCTACAACGA ACATTATC 3186 6776 UACGUGGA A CAGUCUGG 1485 CCAGACTG GGCTAGCTACAACGA GTACATTA 3186 6776 UACGUGGA A CAGUCUGG 1485 CCAGACTG GGCTAGCTACAACGA TCCACGTA 3187 6779 GUGGAACA G UCUGGGUG 1486 CACCCAGA GGCTAGCTACAACGA TGTTCCAC 3188 6785 CAGUCUGG G UGGAAUGG 1487 CCATTCCA GGCTAGCTACAACGA CCAGACTG 3189 6790 UGGGUGGA A UGGGGCUG 1488 CAGCCCCA GGCTAGCTACAACGA CCAGACTG 3190 6795 GGAAUGGG G CUGAAACC 1489 GGTTTCAG GGCTAGCTACAACGA CCCATTCC 3191 6801 GGGCUGAA A CCAUGUGC 1490 GCACATGG GGCTAGCTACAACGA CCCATTCC 3191 6804 CUGAAACC A UGUGCAAG 1491 CTTGCACA GGCTAGCTACAACGA TTCAGCCC 3192 6806 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ATGGTTTC 3194 6808 AACCAUGU G CAAGUCUG 1493 CAGACTTG GGCTAGCTACAACGA ACATGGTT 3195 6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA ACATGGTT 3196 6816 GCAAGUCU G UGUCUUGU 1495 ACAAGACA GGCTAGCTACAACGA AGACTTGC 3197 6818 AAGUCUGU G UCUUGUCA 1496 TGACAAGA GGCTAGCTACAACGA AGACCTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTGA GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTGA GGCTAGCTACAACGA ACAGACTT 3198 6826 UCCAAGGAA G UCCAAGGAA 1498 TTCTTGGA GGCTAGCTACAACGA TGACACA 3199 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA TGACAACA 3200 6836 UCCAAGGAA G UGCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA TGACAACGA 3200 6837 AAGAACGGA C CCCAAGAA 1499 CGGTGTCA GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCGAGGA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3203 6847 ACACCGAG A UGUUAAUUU 1502 AATTAACA GGCTAGCTACAACGA ACTCCTTCT 3203 6847 ACACCGAG A UGUUAAUUU 1503 AAAATTAA GGCTAGCTACAACGA ACTCCTGGTG 3204	6762	UUUCUGAG A UAAUGUAC	1480	GTACATTA GGCTAGCTACAACGA CTCAGAAA	3182
6769 GAUAAUGU A CGUGGAAC 1483 GTTCCACG GGCTAGCTACAACGA ACATTATC 3185 6771 UAAUGUAC G UGGAACAG 1484 CTGTTCCA GGCTAGCTACAACGA GTACATTA 3186 6776 UACGUGGA A CAGUCUGG 1485 CCAGACTG GGCTAGCTACAACGA TCCACGTA 3187 6779 GUGGAACA G UCUGGGUG 1486 CACCCAGA GGCTAGCTACAACGA TCCACGTA 3187 6785 CAGUCUGG G UGGAAUGG 1487 CCATTCCA GGCTAGCTACAACGA CCAGACTG 3189 6790 UGGGUGGA A UGGGGCUG 1488 CAGCCCCA GGCTAGCTACAACGA CCCAGACTG 3189 6795 GGAAUGGG G CUGAAACC 1489 GGTTTCAG GGCTAGCTACAACGA CCCATTCC 3191 6801 GGGCUGAA A CCAUGUGC 1490 GCACATGG GGCTAGCTACAACGA CCCATTCC 3191 6804 CUGAAACC A UGUGCAAG 1491 CTTGCACA GGCTAGCTACAACGA TTCAGCCC 3192 6806 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ACGTTTCA 3193 6806 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ACGTTTC 3194 6808 AACCAUGU G CAAGUCUG 1493 CAGACTTG GGCTAGCTACAACGA ACATGGTT 3195 6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA ACATGGTT 3196 6816 GCAAGUCU G UGUCUUGU 1495 ACAAGACA GGCTAGCTACAACGA AGACTTGC 3197 6818 AAGUCUGU G UGUCUUGU 1495 ACAAGACA GGCTAGCTACAACGA AGACTTGC 3197 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTAG GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTGA GGCTAGCTACAACGA ACAGACTT 3198 6826 UCCAAGAA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA ACAGACTT 3198 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA ACAGACTT 3200 6836 UCCAAGAA G UGACCCG 1499 CGGTGTCA GGCTAGCTACAACGA TGACAAGA 3200 6837 AAGAAGUG A CACCGAGA 1500 TCTCGGTG GGCTAGCTACAACGA TTCTTGGA 3201 6849 AAGAAGUG A CACCGAGA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCCAAGAA 1500 TCTCGGTG GGCTAGCTACAACGA ATCTCTTT 3203 6847 ACACCGAG A UGUUAAUU 1502 AATTAACA GGCTAGCTACAACGA ATCTCTTT 3204 6849 ACCGAGAU G UUAAUUU 1503 AAAATTAA GGCTAGCTACAACGA ATCTCTGT 3205	6765	CUGAGADA A UGUACGUG	1481	CACGTACA GGCTAGCTACAACGA TATCTCAG	3183
6771 UAAUGUAC G UGGAACAG 1484 CTGTTCCA GGCTAGCTACAACGA GTACATTA 3186 6776 UACGURGA A CAGUCUGG 1485 CCAGACTG GGCTAGCTACAACGA TCCACGTA 3187 6779 GUGGAACA G UCUGGGUG 1486 CACCCAGA GGCTAGCTACAACGA TCTCCAC 3188 6785 CAGUCUGG G UGGAAUGG 1487 CCATTCCA GGCTAGCTACAACGA CCAGACTG 3189 6790 UGGGUGGA A UGGGGCUG 1488 CAGCCCCA GGCTAGCTACAACGA CCAGACTG 3189 6795 GGAAUGGG G CUGAAACC 1489 GGTTTCAG GGCTAGCTACAACGA TCCACCCA 3190 6801 GGGCUGAA A CCAUGUGC 1489 GGTTTCAG GGCTAGCTACAACGA TCCACCCA 3191 6804 CUGAAACC A UGUGCAAG 1491 CTTGCACA GGCTAGCTACAACGA TTCAGCCC 3192 6805 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ATGGTTTC 3194 6806 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ACATGGTT 3195 6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA ACATGGTT 3195 6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA ACATGGTT 3196 6816 GCAAGUCU G UGUCUUGU 1495 ACAAGACA GGCTAGCTACAACGA AGACTTGC 3197 6818 AAGUCUGU G UGUCUUGU 1496 TGACAAGA GGCTAGCTACAACGA ACAGACTTG 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTAG GGCTAGCTACAACGA AAGACTTC 3199 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA AAGACACA 3199 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA TGACAACA 3200 6836 UCCAAGAA G UGACACCG 1499 CGGTGTCA GGCTAGCTACAACGA TTCTTGGA 3201 6839 AAGAAGUG A CACCGAGAA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCGAGAB 1500 TCTCGGTG GGCTAGCTACAACGA GTCACTTC 3203 6847 ACACCGAG A UGUUAAUUU 1502 AATTAACA GGCTAGCTACAACGA ATCTCGGT 3204 6849 ACCGAGAU G UUAAUUUU 1503 AAAATTAA GGCTAGCTACAACGA ATCTCGGT 3205	6767	GAGAUAAU G UACGUGGA	1482	TCCACGTA GGCTAGCTACAACGA ATTATCTC	3184
6776 UACGURGA A CAGUCUGG 1485 CCAGACTG GGCTAGCTACAACGA TCCACGTA 3187 6779 GUGGAACA G UCUGGGUG 1486 CACCCAGA GGCTAGCTACAACGA TGTTCCAC 3188 6785 CAGUCUGG G UGGAAUGG 1487 CCATTCCA GGCTAGCTACAACGA CCAGACTG 3189 6790 UGGGUGGA A UGGGGCUG 1488 CAGCCCCA GGCTAGCTACAACGA CCAGACTG 3189 6795 GGAAUGGG G CUGAAACC 1489 GGTTTCAG GGCTAGCTACAACGA TCCACCCA 3190 6801 GGGCUGAA A CCAUGUGC 1490 GCACATGG GGCTAGCTACAACGA TCCACCCA 3191 6804 CUGAAACC A UGUGCAAG 1491 CTTGCACA GGCTAGCTACAACGA TTCAGCCC 3192 6805 GAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ATGGTTTC 3194 6806 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ACATGGTT 3195 6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA ACATGGTT 3195 6816 GCAAGUCU G UGUCUUGU 1494 GACACAGA GGCTAGCTACAACGA ACATGGTT 3196 6816 GCAAGUCU G UGUCUUGU 1495 ACAAGACA GGCTAGCTACAACGA AGACTTGC 3197 6818 AAGUCUGU G UCUUGUCA 1496 TGACAAGA GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTAG GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTGA GGCTAGCTACAACGA ACAGACTT 3199 6826 UCCAAGAA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA TGACAACA 3200 6836 UCCAAGAA G UGACACCG 1499 CGGTGTCA GGCTAGCTACAACGA TTCTTGGA 3201 6839 AAGAAGUG A CACCGAGA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCGAGAB 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3203 6847 ACACCGAG A UGUUAAUU 1502 AATTAACA GGCTAGCTACAACGA ATCTCGGT 3204 6849 ACCCGAGAU G UUAAUUUU 1503 AAAATTAA GGCTAGCTACAACGA ATCTCGGT 3205	6769	GAUAAUGU A CGUGGAAC	1483	GTTCCACG GGCTAGCTACAACGA ACATTATC	3185
6779 GUGGAACA G UCUGGGUG 1486 CACCCAGA GGCTAGCTACAACGA TGTTCCAC 3188 6785 CAGUCUGG G UGGAAUGG 1487 CCATTCCA GGCTAGCTACAACGA CCAGACTG 3189 6790 UGGGUGGA A UGGGGCUG 1488 CAGCCCCA GGCTAGCTACAACGA TCCACCCA 3190 6795 GGAAUGGG G CUGAAACC 1489 GGTTTCAG GGCTAGCTACAACGA CCCATTCC 3191 6801 GGGCUGAA A CCAUGUGC 1490 GCACATGG GGCTAGCTACAACGA TCCACCCC 3192 6804 CUGAAACC A UGUGCAAG 1491 CTTGCACA GGCTAGCTACAACGA GGTTTCAG 3193 6806 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ATGGTTTC 3194 6808 AACCAUGU G CAAGUCUG 1493 CAGACTTG GGCTAGCTACAACGA ACGTTTC 3195 6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA ACATGGTT 3196 6816 GCAAGUCU G UGUCUUGU 1495 ACAAGACA GGCTAGCTACAACGA AGACTTCC 3197 6818 AAGUCUGU G UCUUGUCA 1496 TGACAAGA GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTAGA GGCTAGCTACAACGA ACAGACTT 3198 6824 UCUAGAGAA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA ACAGACACA 3199 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA TGACAAGA 3200 6836 UCCAAGAA G UGACACCG 1499 CGGTGTCA GGCTAGCTACAACGA TGACAAGA 3201 6839 AAGAAGUG A CACCGAGAA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCGAGAUG 1501 CATCTCGG GGCTAGCTACAACGA CACTTCTT 3203 6847 ACACCGAG A UGUUAAUUU 1502 AATTAACA GGCTAGCTACAACGA ATCTCGGT 3204 6849 ACCGAGAU G UUAAUUUU 1503 AAAATTAA GGCTAGCTACAACGA ATCTCGGT 3205	6771	UAAUGUAC G UGGAACAG	1484	CTGTTCCA GGCTAGCTACAACGA GTACATTA	3186
6785 CAGUCUGG G UGGAAUGG 1487 CCATTCCA GGCTAGCTACAACGA CCAGACTG 3189 6790 UGGGUGGA A UGGGGCUG 1488 CAGCCCCA GGCTAGCTACAACGA TCCACCCA 3190 6795 GGAAUGGG G CUGAAACC 1489 GGTTTCAG GGCTAGCTACAACGA CCCATTCC 3191 6801 GGGCUGAA A CCAUGUGC 1490 GCACATGG GGCTAGCTACAACGA TTCAGCCC 3192 6804 CUGAAACC A UGUGCAAG 1491 CTTGCACA GGCTAGCTACAACGA GGTTTCAG 3193 6806 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ATGGTTTC 3194 6808 AACCAUGU G CAAGUCUG 1493 CAGACTTG GGCTAGCTACAACGA ACTGGTT 3195 6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA TTGCACAT 3196 6816 GCAAGUCU G UGUCUUGU 1495 ACAAGACA GGCTAGCTACAACGA AGACTTGC 3197 6818 AAGUCUGU G UCUUGUCA 1496 TGACAAGA GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTGA GGCTAGCTACAACGA AAGACACA 3199 6824 UCCAAGAA G UGCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA AAGACACA 3199 6825 UCCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA TGACAAGA 3200 6836 UCCAAGAA G UGACACCG 1499 CGGTGTCA GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCGAGAU 1501 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCGAGAU 1501 CATCTCGG GGCTAGCTACAACGA CACTTCTT 3203 6847 ACACCGAG A UGUUAAUU 1502 AATTAACA GGCTAGCTACAACGA ATCTCGGT 3204 6849 ACCGAGAU G UUAAUUU 1503 AAAATTAA GGCTAGCTACAACGA ATCTCGGT 3205	6776	UACGUGGA A CAGUCUGG	1485	CCAGACTG GGCTAGCTACAACGA TCCACGTA	3187
6790 UGGGUGGA A UGGGGCUG 1488 CAGCCCCA GGCTAGCTACAACGA TCCACCCA 3190 6795 GGAAUGGG G CUGAAACC 1489 GGTTTCAG GGCTAGCTACAACGA CCCATTCC 3191 6801 GGGCUGAA A CCAUGUGC 1490 GCACATGG GGCTAGCTACAACGA TTCAGCCC 3192 6804 CUGAAACC A UGUGCAAG 1491 CTTGCACA GGCTAGCTACAACGA GTTTCAG 3193 6806 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ATGGTTTC 3194 6808 AACCAUGU G CAAGUCUG 1493 CAGACTTG GGCTAGCTACAACGA ACATGGTT 3195 6812 AUGUGCAA G UCUGUGUC 1494 GACACGA GGCTAGCTACAACGA ACATGGTT 3196 6816 GCAAGUCU G UGUCUUGU 1495 ACAAGACA GGCTAGCTACAACGA AGACTTGC 3197 6818 AAGUCUGU G UCUUGUCA 1495 TGACAAGA GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTGA GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTGA GGCTAGCTACAACGA AAGACACA 3199 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA TGACAAGA 3200 6836 UCCAAGAA G UGACACCG 1499 CGGTGTCA GGCTAGCTACAACGA TGACAAGA 3201 6839 AAGAAGUG A CACCGAGA 1500 TCTCGGTG GGCTAGCTACAACGA TCTTTGGA 3201 6841 GAAGUGAC A CCGAGAU 1501 CATCTCGG GGCTAGCTACAACGA GTCACTTC 3203 6847 ACACCGAG A UGUUAAUUU 1502 AATTAACA GGCTAGCTACAACGA ATCTCTTT 3204 6849 ACCGAGAU G UUAAUUUU 1503 AAAATTAA GGCTAGCTACAACGA ATCTCGGT 3205	6779	GUGGAACA G UCUGGGUG	1486	CACCCAGA GGCTAGCTACAACGA TGTTCCAC	3188
6795 GGAAUGGG G CUGAAACC 1489 GGTTTCAG GGCTAGCTACAACGA CCCATTCC 3191 6801 GGGCUGAA A CCAUGUGC 1490 GCACATGG GGCTAGCTACAACGA TTCAGCCC 3192 6804 CUGAAACC A UGUGCAAG 1491 CTTGCACA GGCTAGCTACAACGA GGTTTCAG 3193 6806 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ATGGTTTC 3194 6808 AACCAUGU G CAAGUCUG 1493 CAGACTTG GGCTAGCTACAACGA ACATGGTT 3195 6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA TTGCACAT 3196 6816 GCAAGUCU G UGUCUUGU 1495 ACAAGACA GGCTAGCTACAACGA AGACTTGC 3197 6818 AAGUCUGU G UCUUGUCA 1496 TGACAAGA GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTGA GGCTAGCTACAACGA AAGACACA 3199 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA AAGACACA 3199 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA TGACAAGA 3200 6836 UCCAAGAA G UGACACCG 1499 CGGTGTCA GGCTAGCTACAACGA TTCTTGGA 3201 6839 AAGAAGUG A CACCGAGA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCGAGAUG 1501 CATCTCGG GGCTAGCTACAACGA GTCACTTC 3203 6847 ACACCGAG A UGUUAAUUU 1502 AATTAACA GGCTAGCTACAACGA ATCTCGGT 3204 6849 ACCGAGAU G UUAAUUUU 1503 AAAATTAA GGCTAGCTACAACGA ATCTCGGT 3205	6785	CAGUCUGG G UGGAAUGG	1487	CCATTCCA GGCTAGCTACAACGA CCAGACTG	3189
6801 GGGCUGAA A CCAUGUGC 1490 GCACATGG GGCTAGCTACAACGA TTCAGCCC 3192 6804 CUGAAACC A UGUGCAAG 1491 CTTGCACA GGCTAGCTACAACGA GGTTTCAG 3193 6806 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ATGGTTTC 3194 6808 AACCAUGU G CAAGUCUG 1493 CAGACTTG GGCTAGCTACAACGA ACATGGTT 3195 6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA TTGCACAT 3196 6816 GCAAGUCU G UGUCUUGU 1495 ACAAGACA GGCTAGCTACAACGA AGACTTGC 3197 6818 AAGUCUGU G UCUUGUCA 1496 TGACAAGA GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTGA GGCTAGCTACAACGA AAGACACA 3199 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA AGACACA 3200 6836 UCCAAGAA G UGACACCG 1499 CGGTGTCA GGCTAGCTACAACGA TTCTTGGA 3201 6839 AAGAAGUG A CACCGAGA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCGAGAUG 1501 CATCTCGG GGCTAGCTACAACGA GTCACTTC 3203 6847 ACACCGAG A UGUUAAUUU 1502 AATTAACA GGCTAGCTACAACGA ATCTCGGT 3204 6849 ACCGAGAU G UUAAUUUU 1503 AAAATTAA GGCTAGCTACAACGA ATCTCGGT 3205	6790	UGGGUGGA A UGGGGCUG	1488	CAGCCCCA GGCTAGCTACAACGA TCCACCCA	3190
6804 CUGARACC A UGUGCAG 1491 CTTGCACA GGCTAGCTACAACGA GGTTTCAG 3193 6806 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ATGGTTTC 3194 6808 AACCAUGU G CAAGUCUG 1493 CAGACTTG GGCTAGCTACAACGA ACATGGTT 3195 6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA TTGCACAT 3196 6816 GCAAGUCU G UGUCUUGU 1495 ACAAGACA GGCTAGCTACAACGA AGACTTGC 3197 6818 AAGUCUGU G UCUUGUCA 1496 TGACAAGA GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTGA GGCTAGCTACAACGA AAGACACA 3199 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA TGACAAGA 3200 6836 UCCAAGAA G UGACACCG 1499 CGGTGTCA GGCTAGCTACAACGA TTCTTGGA 3201 6839 AAGAAGUG A CACCGAGA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCGAGAUG 1501 CATCTCGG GGCTAGCTACAACGA GTCACTTC 3203 6847 ACACCGAG A UGUUAAUUU 1502 AATTAACA GGCTAGCTACAACGA ATCTCGGT 3204		GGAAUGGG G CUGAAACC	1489	GGTTTCAG GGCTAGCTACAACGA CCCATTCC	3191
6806 GAAACCAU G UGCAAGUC 1492 GACTTGCA GGCTAGCTACAACGA ATGGTTTC 3194 6808 AACCAUGU G CAAGUCUG 1493 CAGACTTG GGCTAGCTACAACGA ACATGGTT 3195 6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA TTGCACAT 3196 6816 GCAAGUCU G UGUCUUGU 1495 ACAAGACA GGCTAGCTACAACGA AGACTTGC 3197 6818 AAGUCUGU G UCUUGUCA 1496 TGACAAGA GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTGA GGCTAGCTACAACGA AAGACACA 3199 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA TGACAAGA 3200 6836 UCCAAGAA G UGACACCG 1499 CGGTGTCA GGCTAGCTACAACGA TTCTTGGA 3201 6839 AAGAAGUG A CACCGAGA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCGAGAUG 1501 CATCTCGG GGCTAGCTACAACGA GTCACTTC 3203 6847 ACACCGAG A UGUUAAUU 1502 AATTAACA GGCTAGCTACAACGA CTCGGTGT 3204					
6808 AACCAUGU G CAAGUCUG 1493 CAGACTTG GGCTAGCTACAACGA ACATGGTT 3195 6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA TTGCACAT 3196 6816 GCAAGUCU G UGUCUUGU 1495 ACAAGACA GGCTAGCTACAACGA AGACTTGC 3197 6818 AAGUCUGU G UCUUGUCA 1496 TGACAAGA GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTGA GGCTAGCTACAACGA AAGACACA 3199 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA TGACAAGA 3200 6836 UCCAAGAA G UGACACCG 1499 CGGTGTCA GGCTAGCTACAACGA TTCTTGGA 3201 6839 AAGAAGUG A CACCGAGA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCGAGAUG 1501 CATCTCGG GGCTAGCTACAACGA GTCACTTC 3203 6847 ACACCGAG A UGUUAAUU 1502 AATTAACA GGCTAGCTACAACGA ATCTCGGT 3204		CUGAAACC A UGUGCAAG		CTTGCACA GGCTAGCTACAACGA GGTTTCAG	3193
6812 AUGUGCAA G UCUGUGUC 1494 GACACAGA GGCTAGCTACAACGA TTGCACAT 3196 6816 GCAAGUCU G UGUCUUGU 1495 ACAAGACA GGCTAGCTACAACGA AGACTTGC 3197 6818 AAGUCUGU G UCUUGUCA 1496 TGACAAGA GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTGA GGCTAGCTACAACGA AAGACACA 3199 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA TGACAAGA 3200 6836 UCCAAGAA G UGACACCG 1499 CGGTGTCA GGCTAGCTACAACGA TTCTTGGA 3201 6839 AAGAAGUG A CACCGAGA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCGAGAUG 1501 CATCTCGG GGCTAGCTACAACGA GTCACTTC 3203 6847 ACACCGAG A UGUUAAUU 1502 AATTAACA GGCTAGCTACAACGA CTCGGTGT 3204			<u> </u>		
6816 GCAAGUCU G UGUCUUGU 1495 ACAAGACA GGCTAGCTACAACGA AGACTTGC 3197 6818 AAGUCUGU G UCUUGUCA 1496 TGACAAGA GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTGA GGCTAGCTACAACGA AAGACACA 3199 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA TGACAAGA 3200 6836 UCCAAGAA G UGACACCG 1499 CGGTGTCA GGCTAGCTACAACGA TTCTTGGA 3201 6839 AAGAAGUG A CACCGAGA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCGAGAUG 1501 CATCTCGG GGCTAGCTACAACGA GTCACTTC 3203 6847 ACACCGAG A UGUUAAUU 1502 AATTAACA GGCTAGCTACAACGA CTCGGTGT 3204					
6818 AAGUCUGU G UCUUGUCA 1496 TGACAAGA GGCTAGCTACAACGA ACAGACTT 3198 6823 UGUGUCUU G UCAGUCCA 1497 TGGACTGA GGCTAGCTACAACGA AAGACACA 3199 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA TGACAAGA 3200 6836 UCCAAGAA G UGACACCG 1499 CGGTGTCA GGCTAGCTACAACGA TTCTTGGA 3201 6839 AAGAAGUG A CACCGAGA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCGAGAUG 1501 CATCTCGG GGCTAGCTACAACGA GTCACTTC 3203 6847 ACACCGAG A UGUUAAUU 1502 AATTAACA GGCTAGCTACAACGA CTCCGTGT 3204					3196
6823 UGUGUCUU G UCAGUCCA 1497 TGGACTGA GGCTAGCTACAACGA AAGACACA 3199 6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA TGACAAGA 3200 6836 UCCAAGAA G UGACACCG 1499 CGGTGTCA GGCTAGCTACAACGA TTCTTGGA 3201 6839 AAGAAGUG A CACCGAGA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCGAGAUG 1501 CATCTCGG GGCTAGCTACAACGA GTCACTTC 3203 6847 ACACCGAG A UGUUAAUU 1502 AATTAACA GGCTAGCTACAACGA CTCCGTGT 3204					
6827 UCUUGUCA G UCCAAGAA 1498 TTCTTGGA GGCTAGCTACAACGA TGACAAGA 3200 6836 UCCAAGAA G UGACACCG 1499 CGGTGTCA GGCTAGCTACAACGA TTCTTGGA 3201 6839 AAGAAGUG A CACCGAGA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCGAGAUG 1501 CATCTCGG GGCTAGCTACAACGA GTCACTTC 3203 6847 ACACCGAG A UGUUAAUU 1502 AATTAACA GGCTAGCTACAACGA CTCGGTGT 3204 6849 ACCGAGAU G UUAAUUUU 1503 AAAATTAA GGCTAGCTACAACGA ATCTCGGT 3205	<u> </u>		1496	TGACAAGA GGCTAGCTACAACGA ACAGACTT	3198
6836 UCCAAGAA G UGACACCG 1499 CGGTGTCA GGCTAGCTACAACGA TTCTTGGA 3201 6839 AAGAAGUG A CACCGAGA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCGAGAUG 1501 CATCTCGG GGCTAGCTACAACGA GTCACTTC 3203 6847 ACACCGAG A UGUUAAUU 1502 AATTAACA GGCTAGCTACAACGA CTCGGTGT 3204 6849 ACCGAGAU G UUAAUUUU 1503 AAAATTAA GGCTAGCTACAACGA ATCTCGGT 3205			<u> </u>		3199
6839 AAGAAGUG A CACCGAGA 1500 TCTCGGTG GGCTAGCTACAACGA CACTTCTT 3202 6841 GAAGUGAC A CCGAGAUG 1501 CATCTCGG GGCTAGCTACAACGA GTCACTTC 3203 6847 ACACCGAG A UGUUAAUU 1502 AATTAACA GGCTAGCTACAACGA CTCGGTGT 3204 6849 ACCGAGAU G UUAAUUUU 1503 AAAATTAA GGCTAGCTACAACGA ATCTCGGT 3205	<u> </u>				3200
6841 GAAGUGAC A COGAGAUG 1501 CATCTCGG GGCTAGCTACAACGA GTCACTTC 3203 6847 ACACCGAG A UGUUAAUU 1502 AATTAACA GGCTAGCTACAACGA CTCGGTGT 3204 6849 ACCGAGAU G UUAAUUUU 1503 AAAATTAA GGCTAGCTACAACGA ATCTCGGT 3205					3201
6847 ACACCGAG A UGUUAAUU 1502 AATTAACA GGCTAGCTACAACGA CTCGGTGT 3204 6849 ACCGAGAU G UUAAUUUU 1503 AAAATTAA GGCTAGCTACAACGA ATCTCGGT 3205		AAGAAGUG A CACCGAGA	1500	TCTCGGTG GGCTAGCTACAACGA CACTTCTT	3202
6849 ACCGAGAU G UUAAUUUU 1503 AAAATTAA GGCTAGCTACAACGA ATCTCGGT 3205	6841	GAAGUGAC A CCGAGAUG	1501	CATCTCGG GGCTAGCTACAACGA GTCACTTC	3203
	6847	ACACCGAG A UGUUAAUU	1502	AATTAACA GGCTAGCTACAACGA CTCGGTGT	3204
6853 AGAUGUUA A UUUUAGGG 1504 CCCTAAAA GGCTAGCTACAACGA TAACATCT 3206	6849	ACCGAGAU G UUAAUUUU	1503	AAAATTAA GGCTAGCTACAACGA ATCTCGGT	3205
	6853	AGAUGUUA A UUUUAGGG	1504	CCCTAAAA GGCTAGCTACAACGA TAACATCT	3206

COCO		1 505	Logon coco, cocon com da acar acoma a a	
6862	UUUUAGGG A CCCGUGCC	1505	GGCACGGG GGCTAGCTACAACGA CCCTAAAA	3207
6866	AGGGACCC G UGCCUUGU	1506	ACAAGGCA GGCTAGCTACAACGA GGGTCCCT	3208
6868	GGACCCGU G CCUUGUUU	1507	AAACAAGG GGCTAGCTACAACGA ACGGGTCC	3209
6873	CGUGCCUU G UUUCCUAG	1508	CTAGGAAA GGCTAGCTACAACGA AAGGCACG	3210
6881	GUUUCCUA G CCCACAAG	1509	CTTGTGGG GGCTAGCTACAACGA TAGGAAAC	3211
6885	CCUAGCCC A CAAGAAUG	1510	CATTCTTG GGCTAGCTACAACGA GGGCTAGG	3212
6891	CCACAAGA A UGCAAACA	1511	TGTTTGCA GGCTAGCTACAACGA TCTTGTGG	3213
6893	ACAAGAAU G CAAACAUC	1512	GATGTTTG GGCTAGCTACAACGA ATTCTTGT	3214
6897	GAAUGCAA A CAUCAAAC	1513	GTTTGATG GGCTAGCTACAACGA TTGCATTC	3215
6899	AUGCAAAC A UCAAACAG	1514	CTGTTTGA GGCTAGCTACAACGA GTTTGCAT	3216
6904	AACAUCAA A CAGAUACU	1515	AGTATCTG GGCTAGCTACAACGA TTGATGTT	3217
6908	UCAAACAG A UACUCGCU	1516	AGCGAGTA GGCTAGCTACAACGA CTGTTTGA	3218
6910	AAACAGAU A CUCGCUAG	1517	CTAGCGAG GGCTAGCTACAACGA ATCTGTTT	3219
6914	AGAUACUC G CUAGCCUC	1518	GAGGCTAG GGCTAGCTACAACGA GAGTATCT	3220
6918	ACUCGCUA G CCUCAUUU	1519	AAATGAGG GGCTAGCTACAACGA TAGCGAGT	3221
6923	CUAGCCUC A UUUAAAUU	1520	AATTTAAA GGCTAGCTACAACGA GAGGCTAG	3222
6929	UCAUUUAA A UUGAUUAA	1521	TTAATCAA GGCTAGCTACAACGA TTAAATGA	3223
6933	UUAAAUUG A UUAAAGGA	1522	TCCTTTAA GGCTAGCTACAACGA CAATTTAA	3224
6945	AAGGAGGA G UGCAUCUU	1523	AAGATGCA GGCTAGCTACAACGA TCCTCCTT	3225
6947	GGAGGAGU G CAUCUUUG	1524	CAAAGATG GGCTAGCTACAACGA ACTCCTCC	3226
6949	AGGAGUGC A UCUUUGGC	1525	GCCAAAGA GGCTAGCTACAACGA GCACTCCT	3227
6956	CAUCUUUG G CCGACAGU	1526	ACTGTCGG GGCTAGCTACAACGA CAAAGATG	3228
6960	UUUGGCCG A CAGUGGUG	1527	CACCACTG GGCTAGCTACAACGA CGGCCAAA	3229
6963	GGCCGACA G UGGUGUAA	1528	TTACACCA GGCTAGCTACAACGA TGTCGGCC	3230
6966	CGACAGUG G UGUAACUG	1529	CAGTTACA GGCTAGCTACAACGA CACTGTCG	3231
6968	ACAGUGGU G UAACUGUG	1530	CACAGTTA GGCTAGCTACAACGA ACCACTGT	3232
6971	GUGGUGUA A CUGUGUGU	1531	ACACACAG GGCTAGCTACAACGA TACACCAC	3233
6974	GUGUAACU G UGUGUGUG	1532	CACACACA GGCTAGCTACAACGA AGTTACAC	3234
6976	GUAACUGU G UGUGUGUG	1533	CACACACA GGCTAGCTACAACGA ACAGTTAC	3235
6978	AACUGUGU G UGUGUGUG	1534	CACACACA GGCTAGCTACAACGA ACACAGTT	3236
6980	CUGUGUGU G UGUGUGUG	1535	CACACACA GGCTAGCTACAACGA ACACACAG	3237
6982	GAGAGAGA G AGAGAGAGA	1536	CACACACA GGCTAGCTACAACGA ACACACAC	3238
6984	GUGUGUGU G UGUGUGUG	1537	CACACACA GGCTAGCTACAACGA ACACACAC	3239
6986	GUGUGUGU G UGUGUGUG	1538	CACACACA GGCTAGCTACAACGA ACACACAC	3240
6988	GUGUGUGU G UGUGUGUG	1539	CACACACA GGCTAGCTACAACGA ACACACAC	3241
6990	GUGUGUGU G UGUGUGUG	1540	CACACACA GGCTAGCTACAACGA ACACACAC	3242
6992	GUGUGUGU G UGUGUGUG	1541	CACACACA GGCTAGCTACAACGA ACACACAC	3243
6994	GUGUGUGU G UGUGUGUG	1542	CACACACA GGCTAGCTACAACGA ACACACAC	3244
6996	GUGUGUGU G UGUGUGUG	1543	CACACACA GGCTAGCTACAACGA ACACACAC	3245
6998	GUGUGUGU G UGUGUGUG	1544	CACACACA GGCTAGCTACAACGA ACACACAC	3246
7000	GUGUGUGU G UGUGUGUG	1545	CACACACA GGCTAGCTACAACGA ACACACAC	
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7004	GUGUGUGU G UGUGUGUG	1547	CACACACA GGCTAGCTACAACGA ACACACAC	3249
7006	GUGUGUGU G UGUGUGUG	1548	CACACACA GGCTAGCTACAACGA ACACACAC	
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7010	GUGUGUGU G UGUGGGUG	1550	CACCCACA GGCTAGCTACAACGA ACACACAC	3251
7012	GUGUGUGU G UGGGUGUG	1551		3252
7016	GUGUGUGG G UGUGGGUG	1552	CACACCCA GGCTAGCTACAACGA ACACACAC	3253
7018	GUGUGGGU G UGGGUGUA		CACCCACA GGCTAGCTACAACGA CCACACAC	3254
7022	GGGUGUGG G UGUAUGUG	1553	TACACCCA GGCTAGCTACAACGA ACCCACAC	3255
7024		1554		3256
	GUGUGGGU G UAUGUGUG	1555	CACACATA GGCTAGCTACAACGA ACCCACAC	3257
7026	GUGGGUGU A UGUGUGUU	1556	AACACACA GGCTAGCTACAACGA ACACCCAC	3258

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7028	GGGUGUAU G UGUGUUUU	1557	AAAACACA GGCTAGCTACAACGA ATACACCC	3259
7030	GUGUAUGU G UGUUUUGU	1558	ACAAAACA GGCTAGCTACAACGA ACATACAC	3260
7032	GUAUGUGU G UUUUGUGC	1559	GCACAAAA GGCTAGCTACAACGA ACACATAC	3261
7037	UGUGUUUU G UGCAUAAC	1560	GTTATGCA GGCTAGCTACAACGA AAAACACA	3262
7039	UGUUUUGU G CAUAACUA	1561	TAGTTATG GGCTAGCTACAACGA ACAAAACA	3263
7041	UUUUGUGC A UAACUAUU	1562	AATAGTTA GGCTAGCTACAACGA GCACAAAA	3264
7044	UGUGCAUA A CUAUUUAA	1563	TTAAATAG GGCTAGCTACAACGA TATGCACA	3265
7047	GCAUAACU A UUUAAGGA	1564	TCCTTAAA GGCTAGCTACAACGA AGTTATGC	3266
7057	UUAAGGAA A CUGGAAUU	1565	AATTCCAG GGCTAGCTACAACGA TTCCTTAA	3267
7063	AAACUGGA A UUUUAAAG	1566	CTTTAAAA GGCTAGCTACAACGA TCCAGTTT	3268
7071	AUUUUAAA G UUACUUUU	1567	AAAAGTAA GGCTAGCTACAACGA TTTAAAAT	3269
7074	UUAAAGUU A CUUUUAUA	1568	TATAAAAG GGCTAGCTACAACGA AACTTTAA	3270
7080	UUACUUUU A UACAAACC	1569	GGTTTGTA GGCTAGCTACAACGA AAAAGTAA	3271
7082	ACUUUUAU A CAAACCAA	1570	TTGGTTTG GGCTAGCTACAACGA ATAAAAGT	3272
7086	UUAUACAA A CCAAGAAU	1571	ATTCTTGG GGCTAGCTACAACGA TTGTATAA	3273
7093	AACCAAGA A UAUAUGCU	1572	AGCATATA GGCTAGCTACAACGA TCTTGGTT	3274
7095	CCAAGAAU A UAUGCUAC	1573	GTAGCATA GGCTAGCTACAACGA ATTCTTGG	3275
7097	AAGAAUAU A UGCUACAG	1574	CTGTAGCA GGCTAGCTACAACGA ATATTCTT	3276
7099	GAAUAUAU G CUACAGAU	1575	ATCTGTAG GGCTAGCTACAACGA ATATATTC	3277
7102	UAUAUGCU A CAGAUAUA	1576	TATATCTG GGCTAGCTACAACGA AGCATATA	3278
7106	UGCUACAG A UAUAAGAC	1577	GTCTTATA GGCTAGCTACAACGA CTGTAGCA	3279
7108	CUACAGAU A UAAGACAG	1578	CTGTCTTA GGCTAGCTACAACGA ATCTGTAG	3280
7113	GAUAUAAG A CAGACAUG	1579	CATGTCTG GGCTAGCTACAACGA CTTATATC	3281
7117	UAAGACAG A CAUGGUUU	1580	AAACCATG GGCTAGCTACAACGA CTGTCTTA	3282
7119	AGACAGAC A UGGUUUGG	1581	CCAAACCA GGCTAGCTACAACGA GTCTGTCT	3283
7122	CAGACAUG G UUUGGUCC	1582	GGACCAAA GGCTAGCTACAACGA CATGTCTG	3284
7127	AUGGUUUG G UCCUAUAU	1583	ATATAGGA GGCTAGCTACAACGA CAAACCAT	3285
7132	UUGGUCCU A UAUUUCUA	1584	TAGAAATA GGCTAGCTACAACGA AGGACCAA	3286
7134	GGUCCUAU A UUUCUAGU	1585	ACTAGAAA GGCTAGCTACAACGA ATAGGACC	3287
7141	UAUUUCUA G UCAUGAUG	1586	CATCATGA GGCTAGCTACAACGA TAGAAATA	3288
7144	UUCUAGUC A UGAUGAAU	1587	ATTCATCA GGCTAGCTACAACGA GACTAGAA	3289
7147	UAGUCAUG A UGAAUGUA	1588	TACATTCA GGCTAGCTACAACGA CATGACTA	3290
7151	CAUGAUGA A UGUAUUUU	1589	AAAATACA GGCTAGCTACAACGA TCATCATG	3291
7153	UGAUGAAU G UAUUUUGU	1590	ACAAAATA GGCTAGCTACAACGA ATTCATCA	3292
7155	AUGAAUGU A UUUUGUAU	1591	ATACAAAA GGCTAGCTACAACGA ACATTCAT	3293
7160	UGUAUUUU G UAUACCAU	1592	ATGGTATA GGCTAGCTACAACGA AAAATACA	3294
7162	UAUUUUGU A UACCAUCU	1593	AGATGGTA GGCTAGCTACAACGA ACAAAATA	3295
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7167	UGUAUACC A UCUUCAUA	1595	TATGAAGA GGCTAGCTACAACGA GGTATACA	3297
7173	CCAUCUUC A UAUAAUAU	1596	ATATTATA GGCTAGCTACAACGA GAAGATGG	3298
7175	AUCUUCAU A UAAUAUAC	1597	GTATATTA GGCTAGCTACAACGA ATGAAGAT	3299
7178	UUCAUAUA A UAUACUUA	1598	TAAGTATA GGCTAGCTACAACGA TATATGAA	3300
7180	CAUAUAAU A UACUUAAA	1599	TTTAAGTA GGCTAGCTACAACGA ATTATATG	3301
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7190	ACUUAAAA A UAUUUCUU	1601	AAGAAATA GGCTAGCTACAACGA TTTTAAGT	3303
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7206	UAAUUGGG A UUUGUAAU	1604	ATTACAAA GGCTAGCTACAACGA CCCAATTA	3306
7210	UGGGAUUU G UAAUCGUA	1605	TACGATTA GGCTAGCTACAACGA AAATCCCA	3307
7213	GAUUUGUA A UCGUACCA	1606	TGGTACGA GGCTAGCTACAACGA TACAAATC	3308
7216	UUGUAAUC G UACCAACU	1607	AGTTGGTA GGCTAGCTACAACGA GATTACAA	3309
7218	GUAAUCGU A CCAACUUA	1608	TAAGTTGG GGCTAGCTACAACGA ACGATTAC	3310
L				2220

7222	TIGGITA COL A COMPANIO	1,000	CARPORA C. COCHA COMA CARA COMA COMA	
7222	UCGUACCA A CUUAAUUG	1609	CAATTAAG GGCTAGCTACAACGA TGGTACGA	3311
7227	CCAACUUA A UUGAUAAA CUUAAUUG A UAAACUUG	1610	TTTATCAA GGCTAGCTACAACGA TAAGTTGG	3312
		1611	CAAGTTTA GGCTAGCTACAACGA CAATTAAG	3313
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		1613	AGCAGTTG GGCTAGCTACAACGA CAAGTTTA	3315
7243	ACUUGGCA A CUGCUUUU	1614	AAAAGCAG GGCTAGCTACAACGA TGCCAAGT	3316
7246	UGGCAACU G CUUUUAUG	1615	CATAAAAG GGCTAGCTACAACGA AGTTGCCA	
7252	CUGCUUUU A UGUUCUGU	1616	ACAGAACA GGCTAGCTACAACGA AAAAGCAG	3318
7254	GCUUUUAU G UUCUGUCU	1617	AGACAGAA GGCTAGCTACAACGA ATAAAAGC	3319
7259	UAUGUUCU G UCUCCUUC	1618	GAAGGAGA GGCTAGCTACAACGA AGAACATA	3320
7269	CUCCUUCC A UAAAUUUU	1619	AAAATTTA GGCTAGCTACAACGA GGAAGGAG	3321
7273	UUCCAUAA A UUUUUCAA	1620	TTGAAAAA GGCTAGCTACAACGA TTATGGAA	3322
7285	UUUUCAAA A UACUAAUU	1621	AATTAGTA GGCTAGCTACAACGA TTTGAAAA	3323
7289	UUCAAAAU A CUAAUUCA	1622	TGAATTAG GGCTAGCTACAACGA ATTTTGAA	3324
	AAAUACUA A UUCAACAA	1623	TTGTTGAA GGCTAGCTACAACGA TAGTATTT	3325
7294	CUAAUUCA A CAAAGAAA	1624	TTTCTTTG GGCTACCTACCACCA TGAATTAG	3326
7305	AAGAAAAA G CUCUUUUU	1625	AAAAAGAG GGCTAGCTACAACGA TTTTTCTT	3327
7323	UUCCUAAA A UAAACUCA	1626	TGAGTTTA GGCTAGCTACAACGA TTTAGGAA	3328
7327	UAAAAUAA A CUCAAAUU	1627	AATTTGAG GGCTAGCTACAACGA TTATTTTA	3329
7333	AAACUCAA A UUUAUCCU	1628	AGGATAAA GGCTAGCTACAACGA TTGAGTTT	3330
7337	UCAAAUUU A UCCUUGUU	1629	AACAAGGA GGCTAGCTACAACGA AAATTTGA	3331
7343	UUAUCCUU G UUUAGAGC	1630	GCTCTAAA GGCTAGCTACAACGA AAGGATAA	3332
7350	UGUUUAGA G CAGAGAAA	1631	TTTCTCTG GGCTAGCTACAACGA TCTAAACA	3333
7360	AGAGAAAA A UUAAGAAA	1632	TTTCTTAA GGCTAGCTACAACGA TTTTCTCT	3334
7370	UAAGAAAA A CUUUGAAA	1633	TTTCAAAG GGCTAGCTACAACGA TTTTCTTA	3335
7378	ACUUUGAA A UGGUCUCA	1634	TGAGACCA GGCTAGCTACAACGA TTCAAAGT	3336
7381	UUGAAAUG G UCUCAAAA	1635	TTTTGAGA GGCTAGCTACAACGA CATTTCAA	3337
7391	CUCAAAAA A UUGCUAAA	1636	TTTAGCAA GGCTAGCTACAACGA TTTTTGAG	3338
7394	AAAAAAUU G CUAAAUAU	1637	ATATTTAG GGCTAGCTACAACGA AATTTTTT	3339
7399	AUUGCUAA A UAUUUUCA	1638	TGAAAATA GGCTAGCTACAACGA TTAGCAAT	3340
7408	UGCUAAAU A UUUUCAAU UAUUUUCA A UGGAAAAC	1639	ATTGAAAA GGCTAGCTACAACGA ATTTAGCA	3341
7415		1640	GTTTTCCA GGCTAGCTACAACGA TGAAAATA	3342
7420	AAUGGAAA A CUAAAUGU	1641	ACATTTAG GGCTAGCTACAACGA TTTCCATT	3343
7422	AAAACUAA A UGUUAGUU	1642	AACTAACA GGCTAGCTACAACGA TTAGTTTT	3344
7426	AACUAAAU G UUUAGUUUA AAAUGUUA G UUUAGCUG	1643	TAAACTAA GGCTAGCTACAACGA ATTTAGTT	3345
7431	UUAGUUUA G CUGAUUGU	1645	CAGCTAAA GGCTAGCTACAACGA TAACATTT	3346
7435	UUUAGCUG A UUGUAUGG	1646	ACAATCAG GGCTAGCTACAACGA TAAACTAA	3347
7438	AGCUGADU G UAUGGGGU	1647	CCATACAA GGCTAGCTACAACGA CAGCTAAA	3348
7440	CUGAUUGU A UGGGGUUU		ACCCCATA GGCTAGCTAGAACGA AATCAGCT	3349
7445	UGUAUGGG G UUUUUCGAA	1648	AAACCCCA GGCTAGCTACAACGA ACAATCAG	
7453	GUUUUCGA A CCUUUCAC	1649	TTCGAAAA GGCTAGCTACAACGA CCCATACA	3351
7460	AACCUUUC A CUUUUUGU	1651		3352
7467	CACUUUUU G UUUGUUUU		ACAAAAAG GGCTAGCTACAACGA GAAAGGTT	3353
7471	UUUUGUUU G UUUUACCU	1652 1653	AAAACAAA GGCTAGCTACAACGA AAAAAGTG	3354
7476	UUUGUUUU A CCUAUUUC	1654	AGGTAAAA GGCTAGCTACAACGA AAACAAAA	3355
7480	UUUUACCU A UUUCACAA	1655	GAAATAGG GGCTAGCTACAACGA AAAACAAA	3356
7485	CCUAUUUC A CAACUGUG	1656	TTGTGAAA GGCTAGCTACAACGA AGGTAAAA	3357
7488	AUUUCACA A CUGUGUAA	1657	CACAGTTG GGCTAGCTACAACGA GAAATAGG	3358
7491	UCACAACU G DGUAAAUU	1658	TTACACAG GGCTAGCTACAACGA TGTGAAAT	3359
7493	ACAACUGU G UAAAUUGC		AATTTACA GGCTAGCTACAACGA AGTTGTGA	3360
		1659	GCAATTTA GGCTAGCTACAACGA ACAGTTGT	3361
7497	CUGUGUAA A UUGCCAAU	1660	ATTGGCAA GGCTAGCTACAACGA TTACACAG	3362

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7500	UGUAAAUU G CCAAUAAU	1661	ATTATTGG GGCTAGCTACAACGA AATTTACA	3363
7504	AAUUGCCA A UAAUUCCU	1662	AGGAATTA GGCTAGCTACAACGA TGGCAATT	3364
7507	UGCCAAUA A UUCCUGUC	1663	GACAGGAA GGCTAGCTACAACGA TATTGGCA	3365
7513	UAAUUCCU G UCCAUGAA	1664	TTCATGGA GGCTAGCTACAACGA AGGAATTA	3366
7517	UCCUGUCC A UGAAAAUG	1665	CATTITCA GGCTAGCTACAACGA GGACAGGA	3367
7523	CCAUGAAA A UGCAAAUU	1666	AATTTGCA GGCTAGCTACAACGA TTTCATGG	3368
7525	AUGAAAAU G CAAAUUAU	1667	ATAATTTG GGCTAGCTACAACGA ATTTTCAT	3369
7529	AAAUGCAA A UUAUCCAG	1668	CTGGATAA GGCTAGCTACAACGA TTGCATTT	3370
7532	UGCAAAUU A UCCAGUGU	1669	ACACTGGA GGCTAGCTACAACGA AATTTGCA	3371
7537	AUUAUCCA G UGUAGAUA	1670	TATCTACA GGCTAGCTACAACGA TGGATAAT	3372
7539	UAUCCAGU G UAGAUAUA	1671	TATATCTA GGCTAGCTACAACGA ACTGGATA	3373
7543	CAGUGUAG A UAUAUUUG	1672	CAAATATA GGCTAGCTACAACGA CTACACTG	3374
7545	GUGUAGAU A UAUUUGAC	1673	GTCAAATA GGCTAGCTACAACGA ATCTACAC	3375
7547	GUAGAUAU A UUUGACCA	1674	TGGTCAAA GGCTAGCTACAACGA ATATCTAC	3376
7552	UAUAUUUG A CCAUCACC	1675	GGTGATGG GGCTAGCTACAACGA CAAATATA	3377
7555	AUUUGACC A UCACCCUA	1676	TAGGGTGA GGCTAGCTACAACGA GGTCAAAT	3378
7558	UGACCAUC A CCCUAUGG	1677	CCATAGGG GGCTAGCTACAACGA GATGGTCA	3379
7563	AUCACCCU A UGGAUAUU	1678	AATATCCA GGCTAGCTACAACGA AGGGTGAT	3380
7567	CCCUAUGG A UAUUGGCU	1679	AGCCAATA GGCTAGCTACAACGA CCATAGGG	3381
7569	CUAUGGAU A UUGGCUAG	1680	CTAGCCAA GGCTAGCTACAACGA ATCCATAG	3382
7573	GGAUAUUG G CUAGUUUU	1681	AAAACTAG GGCTAGCTACAACGA CAATATCC	3383
7577	AUUGGCUA G UUUUGCCU	1682	AGGCAAAA GGCTAGCTACAACGA TAGCCAAT	3384
7582	CUAGUUUU G CCUUUAUU	1683 .	AATAAAGG GGCTAGCTACAACGA AAAACTAG	3385
7588	UUGCCUUU A UUAAGCAA	1684	TTGCTTAA GGCTAGCTACAACGA AAAGGCAA	3386
7593	UUUAUUAA G CAAAUUCA	1685	TGAATTTG GGCTAGCTACAACGA TTAATAAA	3387
7597	UUAAGCAA A UUCAUUUC	1686	GAAATGAA GGCTAGCTACAACGA TTGCTTAA	3388
7601	GCAAAUUC A UUUCAGCC	1687	GGCTGAAA GGCTAGCTACAACGA GAATTTGC	3389
7607	UCAUUUCA G CCUGAAUG	1688	CATTCAGG GGCTAGCTACAACGA TGAAATGA	3390
7613	CAGCCUGA A UGUCUGCC	1689	GGCAGACA GGCTAGCTACAACGA TCAGGCTG	3391
7615	GCCUGAAU G UCUGCCUA	1690	TAGGCAGA GGCTAGCTACAACGA ATTCAGGC	3392
7619	GAAUGUCU G CCUAUAUA	1691	TATATAGG GGCTAGCTACAACGA AGACATTC	3393
7623	GUCUGCCU A UAUAUUCU	1692	AGAATATA GGCTAGCTACAACGA AGGCAGAC	3394
7625	CUGCCUAU A UAUUCUCU	1693	AGAGAATA GGCTAGCTACAACGA ATAGGCAG	3395
7627	GCCUAUAU A UUCUCUGC	1694	GCAGAGAA GGCTAGCTACAACGA ATATAGGC	3396
7634	UAUUCUCU G CUCUUUGU	1695	ACAAAGAG GGCTAGCTACAACGA AGAGAATA	3397
7641	UGCUCUUU G UAUUCUCC	1696	GGAGAATA GGCTAGCTACAACGA AAAGAGCA	3398
7643	CUCUUUGU A UUCUCCUU	1697	AAGGAGAA GGCTAGCTACAACGA ACAAAGAG	3399
7655	UCCUUUGA A CCCGUUAA	1698	TTAACGGG GGCTAGCTACAACGA TCAAAGGA	3400
7659	UUGAACCC G UUAAAACA	1699	TGTTTTAA GGCTAGCTACAACGA GGGTTCAA	3401
7665	CCGUUAAA A CAUCCUGU	1700	ACAGGATG GGCTAGCTACAACGA TTTAACGG	3402
7667	GUUAAAAC A UCCUGUGG	1701	CCACAGGA GGCTAGCTACAACGA GTTTTAAC	3403
7672	AACAUCCU G UGGCACUC	1702	GAGTGCCA GGCTAGCTACAACGA AGGATGTT	3404

Input Sequence = HSFLT. Cut Site = R/Y

Arm Length = 8. Core Sequence = GGCTAGCTACAACGA

HSFLT (Human fit mRNA for receptor-related tyrosine kinase.; Acc# X51602; 7680 bp)

Table VI: Human KDR DNAzyme and Substrate sequence

No	Pos	Substrate	Seq ID	DNAzyme	Seq ID
25 CCGGGAGA G CGGUCAGU 3406 ACTGACCG GGCTAGCTACAACGA TCTCCCGG 4692 28 GGAGAGCG G UCAGUGUG 3407 CACACTGA GGCTAGCTACAACGA CGCTCTCC 4693 28 AGCGGUCAGU G UGUGGUCG 3409 CACACTGA GGCTAGCTACAACGA TGACCGCT 4694 34 CGGUCAGU G UGUGGUCG 3409 CGACCACA GGCTAGCTACAACGA ACTGACCG 4695 36 GUCAGUUG UGUGGUCG 3410 AGCGACCA GGCTAGCTACAACGA ACTGACCA 4696 37 AGUGUGUGG G UGUGCGUU 3410 AGCGACCA GGCTAGCTACAACGA ACACTGAC 4696 39 AGUGUGUGG G UGUCCUU 3411 AGAGGACA GGCTAGCTACAACGA CACACACT 4697 42 GUGUGGUC G CUUUCCUU 3413 AGAGAACG GGCTAGCTACAACGA CACACACT 4697 43 UUUCCUU G CUUUCCUU 3414 AGAGGAACG GGCTAGCTACAACGA GACCACAC 4698 45 UUUCCUU G CUUUCCUU 3414 AGAGGAAC GGCTAACTAACGA GACCACAC 4699 47 GUGCGUGC G UUUCCUU 3414 AGAGGAAC GGCTAACTAACGA GACGACAC 4699 47 GUGCGUCG G UUUCCUU 3414 AGAGGAAC GGCTAACTAACGA GAGGACAA 4700 56 UUUCCUU G CCUGGGCC 3415 GGCGCGGG GGCTAGCTACAACGA GAGGGAAA 4701 56 UUUCCUU G CCUGGGCC 3416 GCCCGGGG GGCTAGCTACAACGA GAGGGAAA 4701 57 UUCCUUG G CCUGGGCC 3417 ATGCCCGG GGCTAGCTACAACGA GAGGCAACA 4702 57 UUCCUUG G CCUGGGCC 3418 GCCCGGGG GGCTAGCTACAACGA GAGGCAACA 4702 57 UUCCUUG G CCUGGGCC 3419 GCAAGTGA GGCTAGCTACAACGA GAGGCAACA 4704 58 UCACUUGC G CCGCGCAG 3420 CCGCGCAG GGCTAGCTACAACGA GAGGCAAA 4705 78 UCACUUGC G CGCCGCAG 3421 GCGGCGAG GGCTAGCTACAACGA GAGGCAAA 4707 78 UCACUUGC G CGCCGCAG 3421 GCGGCAG GGCTAGCTACAACGA AGAGGAA 4708 79 UCCCUUGC G CGCCGCAG 3422 CTCCGGC GGCTAGCTACAACGA GAGGCAAA 4707 79 UCCCUUGC G CGCCAGAA 3423 TTCTGCGG GGCTAGCTACAACGA GAGGCAAA 4707 70 GGGAGAAA UCCUUGC 3420 CCGCGCAAG GGCTAGCTACAACGA GAGGCAAA 4708 70 ACUUGCGG G CAGAAAGU 3424 ACTTTCT GGC GGCTAGCTACAACGA GAGCAAAGTA 4708 70 GGCAGAAA AUCCUUGC 3420 CCGCGCAAG GGCTAGCTACAACGA GGCCAAAGTA 4708 710 GCCGGGGA AGCGCAA 3421 GCGGGGG GGCTAGCTACAACGA GGCCAAAGTA 4708 710 GCCGGGGA AGCGCAC 3421 GCGGGGG GGCTAGCTACAACGA GGCGAAAGTA 4708 710 GCCGGGGA AGCGCAC 3422 CCCCGGGGG GGCTAGCTACAACGA GGCGAAAGTA 4708 710 GCCGGGGA AGCGGCAA 3423 TTCTGCGG GGCTAGCTACAACGA GGCGAAAGTA 4708 710 GCCGGGGA AGCGGCAG 3424 GCCGGGGG GGCTAGCTACAACGA GGGGGGCA 4708 710 GCCGGGGA AGCGGGA AGCGGGGGGGGGGGGGGGGGG			No		No
28 GAGARGCG G UCAGUGUGU 3407 CACACACA GGCTAGCTACAACGA CGCTCTCC 4593 32 AGCGGUCA G UGUGUGUG 3408 ACCACACA GGCTAGCTACAACGA ACGACCGC 4694 34 CGGUCAGU G UGUGUGUG 3409 CGACCACA GGCTAGCTACAACGA ACTGACCG 4696 36 GUCAGUGU G UGUGUGUC 3410 AGCGACCA GGCTAGCTACAACGA ACTGACCA 4696 37 AGUGUGUG G UGUGUUU 3412 AAACGCA GGCTAGCTACAACGA ACACACAC 4696 42 GUGUGUGU G CUGUCUUU 3412 AAACGCA GGCTAGCTACAACGA ACACACAC 4699 43 GUGUGUGU G CUGUCUUU 3414 AAACGCA GGCTAGCTACAACGA GACCACAC 4699 44 GUGUGUGU G CUUUCUCU 3414 AAACGCA GGCTAGCTACAACGA AGCGACCA 4699 45 UUUCCUCU G CUUUCCUCU 3414 AGGGAACG GGCTAGCTACAACGA AGCGACCA 4699 46 GUUUCCUCU G CUUUCCUCU 3414 AGGGAACG GGCTAGCTACAACGA AGCGACCA 4699 47 GUUCCUCU G CUUUCCUCU 3414 AGGGCAGG GGCTAGCTACAACGA AGCGACCA 4700 56 UUUCCUCU G CUCGCGGG 3416 GCCCGGGCG GGCTAGCTACAACGA AGAGGAAA 4701 56 UUUCCUCU G CUCGCGGC 3415 GCCCGGCG GGCTAGCTACAACGA AGAGGAAA 4701 67 UUCCGCCU G CCCGGGGC 3416 GCCCGGCG GGCTAGCTACAACGA AGAGGAAA 4702 62 CUGGCCU G CCCGGGGCA 3417 ATGCCCGG GGCTAGCTACAACGA GCGACGAC 4703 67 UUCCGUCU G CCCGGGCA 3419 GCAAGTGA GGCTAGCTACAACGA GCGGCGA 4704 67 UUCCGUCU G CCCGCGGC 3419 GCAAGTGA GGCTAGCTACAACGA GCGGCGC 4705 67 GCCGGGGC A UCCUUCC 3419 GCAAGTGA GGCTAGCTACAACGA GCGGCGC 4705 68 GCCCGGGGC A UCCUUCC 3419 GCAAGTGA GGCTAGCTACAACGA GCGGCGC 4705 77 JAUCACUU G CGCGCCG 3421 GCGGCGCG GGCTAGCTACAACGA GAGGAAA 4708 80 ACUUGCGC G CCGCCGA 3422 CTGCGGGC GGCTAGCTACAACGA AGATGAA 4708 80 ACUUGCGC G CCGCGCAA 3423 TTCTGCGG GGCTAGCTACAACGA AGATGAA 4708 80 ACUUGCGC G CCGCGAAAGU 3424 ACTTTCTG GGCTAGCTACAACGA TTCTCGG 4711 81 UCCCUUCC G CCGCCAAAAGU 3426 CTTCCCGG GGCTAGCTACAACGA TTCTCGG 4711 81 GCCUGAAA G UCUUGCC 3429 AGAGGATA GCTTACAACGA CGAACGA 4714 81 GCCUGAAA G UCUUGCC 3429 AGAGGATA GCTACACACA CGAACGA 4714 810 CACUUCCC G CACCACA 3422 CCAGGCG GGCTAGCTACAACGA CGACCTTC 4714 810 CACUUCCC G CACCACA 3428 CCACCACGA GGCTAGCTACAACGA CGACCTTC 4714 810 CACUUCCC G CACCACGA 3426 CTTCCCACAG GGCTAGCTACAACGA CGACCTTC 4714 810 CACCUCCC G CACCACCGA 3432 CCAGGGCG GGCTAGCTACAACGA CGACCTTC 4714 810 CACCUCCC G CACCCCCG 3437 CGCCGCG GGCTAGCTACAAC					4691
32 AGCGGUCA G UGUGUGGU 3409 ACCACAC GGCTAGCTACAACGA TAGACGGC 4694 34 CGGUCAGU G UGUGGUCG 3410 AGCGACA GGCTAGCTACAACGA ACTGACCG 4695 36 GUCAGUGU G UGGUCGCU 3410 AGCGACA GGCTAGCTACAACGA ACACCAC 4696 39 AGUGUGUG G UGGUCGCC 3411 CGCAGGGA GGCTAGCTACAACGA ACACCAC 4698 42 GUGUGGUC G CUGUCUCU 3412 AAAGGCA GGCTAGCTACAACGA ACACCAC 4698 45 UGGUCGCU G CUGUCUCU 3413 AGGAAACG GGCTAGCTACAACGA AGCGACAC 4698 46 UUUCCUCU G CUUUCCUCU 3414 AGAGGAAA GGCTAGCTACAACGA AGCGACAC 4698 47 GUGCGCC G UUUCCUCU 3414 AGAGGAAA GGCTAGCTACAACGA AGCGACAC 4698 48 UUUCCUCU G CUUUCCUCU 3414 AGAGGAAA GGCTAGCTACAACGA AGCGACAC 4700 56 UUUCCUCU G CCUGCGCC 3415 GGCGCGGG GGCTAGCTACAACGA AGCGACAC 4700 56 UUUCCUCU G CCUGCGCC 3415 GGCGCGGG GGCTAGCTACAACGA AGCGACAC 4700 56 UUUCCUCU G CCUGCGCC 3417 ATGCCCGG GGCTAGCTACAACGA AGCGACAC 4700 56 UUUCCUCU G CCUGCGCC 3418 AGCGCAGC GGCTAGCTACAACGA AGCGACAC 4700 57 UUCCUCU G CCCGCGGC 3418 AAGTGAT GGCTAGCTACAACGA AGCGACAC 4700 68 CCCGGGC G CAUCACUU 3418 AAGTGAT GGCTAGCTACAACGA AGCGACAC 4700 69 CCCGGGC G CAUCACUU 3418 AAGTGAT GGCTAGCTACAACGA CGAGCGCA 4704 69 CCCGGGC G CAUCACUU 3418 AAGTGAT GGCTAGCTACAACGA CGAGCGCA 4705 77 JAUCACUU G CGCGCCGC 3421 GCGGCGCG GGCTAGCTACAACGA GATGCCC 77 JAUCACUU G CGCGCCAC 3421 GCGGCGCG GGCTAGCTACAACGA GATGCCC 77 JAUCACUU G CGCGCCAC 3422 CTCGGGCA GGCTAGCTACAACGA AGTGAT 4707 80 ACUUGCGC G CCGCAGA 3423 TTCTGCGG GGCTAGCTACAACGA GATGCCC 90 CGCAGAAAG G UCCGUCU 3425 CCAGACGA GGCTAGCTACAACGA AGTGAT 4707 90 CGCAGAAA G UCCGUCU 3425 CCAGACGA GGCTAGCTACAACGA AGATGAT 4708 91 UCCGUCUG G CACCCCCG 3421 ACCTTCTTC GGCTAGCTACAACGA AGATGAT 4707 92 GCCAGGAA G UCCGUCU 3425 CCAGACGG GGCTAGCTACAACGA CAGACGT 4710 93 GAAGGAG G UCCGCCGC G CACAAAGG 3426 CTCCCAGA GGCTAGCTACAACGA CAGACGT 4710 94 GAAGGUC G UCCGCCC G A343 TTCTGCGG GGCTAGCTACAACGA CAGACGT 4710 95 UCCGUCUC G CACCACGA 3426 CTCCCAGG GGCTAGCTACAACGA CAGACGT 4710 106 CCCUGCAG G UCCCCCGG 3426 CTCGCGGGG GGCTAGCTACAACGA CAGACGT 4710 107 CUCCCU A CCGGCACG 3426 CTCGCGGGG GGCTAGCTACAACGA CAGACGT 4711 108 CCCUCCUC A CCGCCAGA 3432 TCCGCGGG GGCTAGCTACAACGA CAGACGT 4710 10		 			4692
140 140					4693
36 GUCAGUGU G UGGUCGCU 3410 AGCARCCA GGCTAGCTACAACGA ACACTGAC 4656 39 AGUGUGUG G UGGCUGUC 3411 CAAAGGA GGCTAGCTACAACGA CACACACT 4657 42 GUGUGGUC G CUGCGUUU 3412 AAAGGAG GGCTAGCTACAACGA GACCACAC 4659 45 UGGCGCG G CUGUCCU 3413 AGAAACG GGCTAGCTACAACGA AGCGACCA 4659 46 GUGCGCG G UUUCCUCU 3414 AGAGGAACG GGCTAGCTACAACGA AGCGACCA 4659 47 GUGCGUGC G UUUCCUCU 3414 AGAGGAAC GGCTAGCTACAACGA AGCGACCA 4659 48 UUUCCUCU G CUCGCGGC 3415 GGCGCAGG GGCTAGCTACAACGA AGGGACA 4700 56 UUUCCUCU G CUCGCGGC 3416 GCCGGGG GGCTAGCTACAACGA AGGGACAA 4702 60 CUCUGCCU G CGCCGGGG 3417 ATGCCCGG GGCTAGCTACAACGA AGGCACAC 4702 61 CUUCCCCU G CGCCGGGG 3417 ATGCCCGG GGCTAGCTACAACGA AGGCACAC 4702 62 CUGCCUGC G CCGGGGCA 3417 ATGCCCGG GGCTAGCTACAACGA GCCAGCAC 4703 63 UUCCCCU G CACCAGAGA 3419 GCAAGGG GGCTAGCTACAACGA GCCAGCACA 4704 64 CAACACU G CACCACACA 3419 GCACGGCG GGCTAGCTACAACGA GCCCGGCC 4705 72 CGGGCACA A CUUGCGCG 3420 CCGCGCAAC GGCTAGCTACAACGA GCCCGGCC 4705 73 UCACUUG G CGCCGCAG 3421 GCGGCCAC GGCTAGCTACAACGA AGAGCAACA 4707 74 UCACUUG G CGCCGCAG 3422 CTGCGGCG GGCTAGCTACAACGA AATGGA ATGCACA 4707 75 UCACUUG G CGCCGCAG 3422 CTGCGGCG GGCTAGCTACAACGA AATGGA ATGCACA 4707 76 UCACUUG G CACCACAA 3423 TTCTGCGG GGCTAGCTACAACGA ACGCAACT 4709 78 UCACUUG G CAGCAGAA 3423 TTCTGCGG GGCTAGCTACAACGA GGCCCACAT 4709 80 AGUUGGGC G CGCGCAGA 3422 TTCTGCGG GGCTAGCTACAACGA GGCCCAACT 4709 81 UGCGCCC G CAGAAAGU 3424 ACTTTCTG GGCTAGCTACAACGA GGCCCAACT 4709 82 UCCGUCUG G CAGCCAGCA 3422 CCAGCGCGC GGCTAGCTACAACGA GGACCAACT 4709 83 UGCGCCG G CAGAAAGU 3424 ACTTTCTG GGCTAGCTACAACGA GGACGAAC 4714 90 CGCAGGAAA UCCCUCUC 3429 AGAGGGA GGCTAGCTACAACGA GGACGAAC 4714 91 CAAAGCCGCG A UACCCUCC 3430 AGAGGGA GGCTAGCTACAACGA CGAACGGA 4713 102 GCCGGGCA A UAUCCCUCC 3430 AGAGGGA GGCTAGCTACAACGA CCAGGCGA 4716 103 CCCGCGAA AGGACGA 3431 GGTGCCGG GGCTAGCTACAACGA CCAGGCGA 4716 104 CCCUCCCU A CCGGCACA 3431 GGTGCCGG GGCTAGCTACAACGA CCAGGGCA 4716 105 CCCCCGGA A CCCCGCCA 3432 GCCGGCGC GGCTAGCTACAACGA CCAGGGC 4716 105 CCCCCGGA A CCCCGCCA 3433 GCGGGGG GGCTAGCTACAACGA CCAGGGC 4716 105 CCCCCGGA G CCCCGCCAA 3431 G					4694
39 AGUGUGUG G UCGCUGCG 3411 CUCAGGGA GGCTAGCTACAACGA CACACACT 4697 42 GUGUGGU G CUGCUUCU 3412 AAACGCAG GGCTAGCTACAACGA AGCCACACAC 4698 45 UGGUGGU G CUGUCUCU 3413 AAGGAAGG GGCTAGCTACAACGA AGCGAACACA 4698 47 GUGGCUGC G UUUCCUCU 3414 AGGAGAAG GGCTAGCTACAACGA AGGAGAAA 4700 56 UUUCCUCU G CCCGGGCC 3415 GGCGGAGG GGCTAGCTACAACGA AGGAGAAA 4701 60 CUGCCUGC G CCCGGGAU 3417 ATGCCCGG GGCTAGCTACAACGA AGGCAGAG 4702 61 CUGCCGCG G CAUCACUU 3418 AAGTGATACAACGA GCCAGGAGGAG 4704 69 CCGCGGAG G CAUCACUU 3419 GCAAGGAC GGCTAGCTACAACGA GATGCCC 4705 72 COGGGAC A UCACUUGC 3421 GCGGCAGC GGCTAGCTACAACGA GATGCCC 4706 80 ACUUGCU G CGCCCAGA 3422 CTGCGGCAG GGCTAGCTACAACGA AGGACACAT 4707 81 UCACUUGC G CGCCAAGA 3423 TTCTGCGG GGCTAGCTACAACGA AGGACACAT 4709 82 UCACACAGA G CCCGCAAGAGA 3422 TTCTGCGG GGCTACCAACAACAACAACAACAAACAAACAAAACA					4695
42 GGGGGGC G CUGCGUUU 3412 AAACSCAG GGCTAGCTACAACGA GACCACCAC 4698 45 UGGUGCC G GUUUCCUU 3413 AGGAAACG GGCTAGCTACAACGA AGCGAACCAC 4699 47 GUCGUGC G UUUCCUCU 3413 AGGAAACG GGCTAGCTACAACGA AGCGAACCAC 4799 56 UUUCCUCU G CCUGCGCC 3415 GGCGCAGG GGCTAGCTACAACGA AGCGAACA 4700 56 UUUCCUCU G CCUGCGCC 3415 GGCGCAGG GGCTAGCTACAACGA AGGGAAA 4701 60 CUCUGCCU G CGGCGGGC 3415 GGCGCAGG GGCTAGCTACAACGA AGGCAAGA 4701 61 CUCUGCCU G CCGGGGCA 3416 GCCCGGGG GGCTAGCTACAACGA AGGCAAGA 4701 62 CUGCGCUGC G CCGGGGCA 3417 ATGCCCGG GGCTAGCTACAACGA AGGCAAGA 4701 63 CCCGGCGC G CAUCACUU 3418 AAGTGATG GGCTAGCTACAACGA CCCGGCGCA 4706 64 CCCGGGCG A CUCUCUC 3419 GCAAGTGA GGCTAGCTACAACGA CCCGGCGCA 4706 65 CCCGGGCC A CUCUCUC 3419 GCAAGTGA GGCTAGCTACAACGA CCCGGCGCA 4706 67 UCCGCCCG G CAUCACUUC 3419 GCAAGTGA GGCTAGCTACAACGA AGGCAGAA 4706 68 CCCGGGCC G CCGCCGCG 3421 GCGGCCG GGCTAGCTACAACGA AGGTGATGA 77 NUCACUU G CGCGCCGC 3421 GCGGCGCG GGCTAGCTACAACGA AAGTGATGA 4708 80 ACUUCGCC G CCGCAGA 3422 CTCCGGCG GGCTAGCTACAACGA AAGTGATGA 4708 81 UCCCUUCG G CCGCCAGA 3422 CTCCGGCG GGCTAGCTACAACGA GCACAGTGA 4708 80 ACUUCGCC G CCGCAGA 3422 CTCCGGCG GGCTAGCTACAACGA GCCGAGCT 4709 90 CGCAGAAA G UCCGUCUG 3422 ACTTCCGGC GGCTAGCTACAACGA GCGCAAGT 4709 90 CGCAGAAA G UCCGUCUG 3422 CTCCGGAG GGCTAGCTACAACGA GCGCAAGT 4709 90 CGCAGAA G UCCGUCUG 3422 CTCCCAGA GGCTAGCTACAACGA TTCCTACGG 4711 102 GCUCGGCA C CCCGCAGA 3422 CTCCCAGA GGCTAGCTACAACGA TTCCTACGA 4711 103 GCCUGGAU A UCCUCUC 3420 CTCCCAGA GGCTAGCTACAACGA TTCCCAGAC 4711 104 GCAAGAA G UCCGUCUC 3420 CTCCCAGA GGCTAGCTACAACGA TTCCAAGCA 4711 105 GCCUGGAU A UCCUCUC 3430 GGAGAGGA GGCTAGCTACAACGA TTCCAAGCA 4711 106 CCUCCCCU A CCGGCAC 3431 GGGGCGC GGCTAGCTACAACGA ATCCAAGCA 4711 107 GCCUCCCU A CCGGCAC 3431 GGGGCGC GGCTAGCTACAACGA ACGAAGA 4711 108 CCUCAGAC A CCCGCCA 3432 TCCGGGCG GGCTAGCTACAACGA ACGAAGA 4711 109 CCUCCCCU A CCGCCCC 3431 GGGCGCC GGCTAGCTACAACGA ACGAAGAC 4711 110 GCCCGCAC A CCCGCCC 3431 GGCCCCC GGCCCACACACACA CCCCCCCCCCCA 3431 GGCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC					4696
45 UGGUCGCU G CGUUUCCU 3413 AGGAAACG GGCTAGCTACAACGA AGCGACCA 4700 GUGGCUGC G UUUCCUCU 3414 AGAGGAAA GGCTAGCTACAACGA GCAGCGAC 4700 GUUUCCUCU G CCUGCGCG 3415 GGCGAGG GGCTAGCTACAACGA AGAGGAAA 4701 60 CUCUGCCU G CGCGGGC 3416 GCCCGGGG GGCTAGCTACAACGA AGAGGAAA 4701 61 CUCUGCCU G CGCGGGC 3416 GCCCGGG GGCTAGCTACAACGA AGAGGAAA 4702 62 CUGCCUGC G CGGGGCAU 3417 ATGCCCGG GGCTAGCTACAACGA AGAGGAGAA 4702 63 CUGCCGGG C AUCACUUGC 3418 AGAGGAGGA GGCTAGCTACAACGA GCCGGGCA 4704 64 CGCCGGGC A UCACUUGC 3419 AGAGGAGGA GGCTAGCTACAACGA GCCGGGCA 4704 65 CGCCGGC A UCACUUGC 3419 CGCGCAGA GGCTAGCTACAACGA GCCCGGCG 4706 66 CGCGGGC A UCACUUGC 3419 CGCGCAGA GGCTAGCTACAACGA GATGCCCG 4706 67 CGCGGGC C UCACCUUGC 3411 GCGGCGCG GGCTAGCTACAACGA GATGCCCG 4706 68 ACUUGCCG C CGCCAGA 3422 CTGCGGCG GGCTAGCTACAACGA GCAAGTGA 4707 78 UCACUUGC G CCCCGCAGA 3422 CTGCGGCG GGCTAGCTACAACGA GCAAGTGA 4707 78 UCACUUGC G CCCGCAGA 3422 CTGCGGC GGCTAGCTACAACGA GCAAGTGA 4709 80 ACUUGCCG C CCGCAGAA 3423 TTTCTGCG GGTAGCTACAACGA GCGCAAGT 4709 91 CGCGGCAGC G CAGAAAGU 3424 ACTTTCTGC GGCTAGCTACAACGA GCGCAAGT 4710 92 GCAGAAAA G UCCGUCUG 3425 CAGACGGA GGCTAGCTACAACGA GGCCAAGT 4710 93 UCCGUCGC G CAGCACGG 3427 CCAGGCTG GGCTAGCTACAACGA GGACGGCA 4711 102 GUCUGCCU A CCGGCAGC 3427 CCAGGCTG GGCTAGCTACAACGA CAGACGGA 4714 108 CAGCCUGG A UAUCCUCU 3429 AGAGGATA GGCTAGCTACAACGA CAGACGGA 4714 109 CCUGCCU A CCGGCACC 3431 GGGAGGAGA GGCTAGCTACAACGA CAGACGGA 4715 110 GCCUGGAU A UCCUCUCU 3430 GGAGGAGA GGCTAGCTACAACGA CAGACGGA 4716 120 CCUCUCCU A CCGGCACC 3431 GGGAGGGG GGCTAGCTACAACGA CAGACGGA 4716 121 CUCUCCCU A CCGGCACC 3431 GGGGGGG GGCTAGCTACAACGA CGGGTAGG 4716 122 CUCUCCCU A CCGGCACC 3431 GGGGGGG GGCTAGCTACAACGA CGGGTGG 4716 123 CACCGCGC G CAGACGCC 3431 GGGGGGG GGCTAGCTACAACGA AGGGAGGG 4717 124 UCCUACCG G CAGACGCC 3431 GGGGGGG GGCTAGCTACAACGA CGGGGGG 4716 136 CCGCAGCC G CCGCCGGG 3432 GGGGGGG GGCTAGCTACAACGA GCGGGTG 4716 137 ACCGGGGC G CCGCGGGG 3432 GGGGGGG GGCTAGCTACAACGA GCGGGGG 4716 138 ACCGGCGC G CAGACGGC 3434 GGGGGGG GGCTAGCTACAACGA GCGGGGG 4721 141 ACGCCCCG G CAGACGCC 3434 GGGGGGG GGCTAG	<u> </u>				4697
47 GUGGUGG G UUUCCUCU 3414 AGAGGAAA GGCTAGCTACAACGA GCAGCGAC 4770 56 UUUCCUCU G CCUGGCCC 3415 GGCGCAG GGCTAGCTACAACGA AGAGGAAA 4701 60 CUCUGCU G CGCGGGG 3416 GCCCGGCG GGCTAGCTACAACGA AGAGGAAA 4701 61 CUCUGCU G CGCGGGC 3417 ATGCCCGG GGCTAGCTACAACGA AGAGGAAA 4701 62 CGCCGGC G CGGGGCAU 3417 ATGCCCGG GGCTAGCTACAACGA GCAGGGCA 4704 63 CGCCGGG G CAUCACUU 3418 AAGTGATG GGCTAGCTACAACGA CCGGCGCA 4704 65 CGCCGGGC A UCACUUG 3419 GCAGTGG GGCTAGCTACAACGA GCCGGCGC 4706 67 UGCGCCGG C CUCGCCGC 3421 GCGGCAAG GGCTAGCTACAACGA GCCCGGCG 4706 76 NUCACUUG C GCGCCAG 3422 CTGCGGCG GGCTAGCTACAACGA AAGTGATG 4707 78 UCACUUGC G CGCCGCAG 3422 CTGCGGCG GGCTAGCTACAACGA AAGTGATG 4707 80 ACUUGCGC G CGCCAGAA 3423 TTCTGCGG GGCTAGCTACAACGA GCAAGTG 4708 80 ACUUGCGC G CGCAGAAA 3423 TTCTGCGG GGCTAGCTACAACGA GCACAGT 4709 90 CGCAGAAA G UCCGCCCG 3422 CTGCGGCG GGCTAGCTACAACGA GGCCAAGT 4709 91 CGCCGGCC G CAGAAAGU 3424 ACTTCTG GGCTAGCTACAACGA GGCCGACAT 4709 92 UCCGCUC G CAGCCGCA 3425 CACACGAA GGCTAGCTACAACGA GGCCACACT 4710 93 UCCGCCG G CAGCAGAA 3426 CTGCCAGA GGCTAGCTACAACGA GGCCACACT 4710 94 GAAAGUC G UCUGGCAG 3426 CTGCCCAGA GGCTAGCTACAACGA GGCCACACT 4712 95 UCCGCUC G CAGCCCGC 3427 CCAGGCTG GGCTAGCTACAACGA CGACAGAA 4711 105 CAGCCUGA A UAUCCUCU 3429 AGAGGATA GGCTAGCTACAACGA CAACGAA 4714 106 CAGCCUGA A UAUCCUCU 3429 AGAGGATA GGCTAGCTACAACGA CCAAGCGAA 4715 110 GCCUGGAU A UCCUCUCU 3429 AGAGGATA GGCTAGCTACAACGA CCAAGCGA 4716 120 CUCUCCU A CCGGCAC 3431 GGTAGCTACAACGA AGAGGAA 4717 121 UCCUACCG G CACCCCGA 3432 TGCCGGGG GGCTAGCTACAACGA AGAGGAA 4717 122 UCCUACCG G CACCCCGA 3432 TGCCGGGG GGCTAGCTACAACGA AGGGAAGA 4718 126 CUACACGG A CCCCGCAA 3432 TGCGGGTG GGCTAGCTACAACGA AGGGAAGAA 4718 127 CUCUACCG G CACCCCGA 3431 GGGGCGG GGCTAGCTACAACGA GGGGGGG 4716 130 CGGCAGAG G CCCCGGCA 3431 GGGGGCG GGCTAGCTACAACGA GGGGGGG 4716 131 CCCUCAC G CACCCGCA 3431 GGGGGCG GGCTAGCTACAACGA GGGGGGG 4716 132 CCCCCCCC G CAGCCCCC 3431 GGGGCGG GGCTAGCTACAACGA GGGGGGG 4716 133 CCGCCGCG G CGCCCCCC 3431 GCCCCCC GGCTAGCTACAACGA GGGGCGC 4721 142 LCCUACCG G CACCCCCC 3431 GC					4698
DECORDER COURGE SECONDE SALE GROCEAGE GROTAGCTACAACGA AGAGGAAA 4701	—				4699
60 CUCUGCCU G CGCCGGG 3416 GCCCGGC GGCTAGCTACAACGA AGGCAGAG 4702 62 CUGCCUGC G CGGGCAU 3417 ATGCCGG GGCTAGCTACAACGA GCAGGCAG 4703 67 UGCGCGG G CAUCACUU 3418 AAGTGAT GGCTAGCTACAACGA CGGCGCA 4704 69 CGCGGGC A UCACUUGC 3419 GCAAGTGA GGCTAGCTACAACGA GCCGGCG 4705 72 CGGGCAU A CUUGCGG 3420 CGCGCAG GGCTAGCTACAACGA GATGCCC 4706 74 AUCACUU G CGCCGCC 3421 GCGGCAG GGCTAGCTACAACGA AAGTGATG 4707 78 UCACUUG G CGCCGCA 3422 CTGCGGC GGCTAGCTACAACGA AAGTGATG 4707 78 UCACUUG G CGCCGCA 3422 CTGCGGC GGCTAGCTACAACGA AAGTGATG 4707 78 UCACUUG G CGCCAGAA 3423 TTCTGCGG GGCTAGCTACAACGA GACGCAAGT 4709 80 ACUUGCGC G CGCAGAA 3423 TTCTGCGG GGCTAGCTACAACGA GCGCAAGT 4709 91 CGCAGAAA G UCCGUCUG 3425 CAGACGGA GGCTAGCTACAACGA GGCCGCA 4710 92 GCAGAAA G UCCGUCUG 3425 CAGACGGA GGCTAGCTACAACGA GGCCACCA 4710 93 UCCGUCUG G UCUGGCAG 3426 CTGCCCAGA GGCTAGCTACAACGA TTCTGCG 4711 104 GAAAGUC G UCUGGCAG 3426 CTGCCCAGA GGCTAGCTACAACGA TTCTGCG 4711 105 CCUUGGCA G CCUGGAUA 3428 TATCCCAG GGCTAGCTACAACGA CGACGGA 4714 106 CCUGGAU A UCCUCUC 3428 AGAGGAT GGCTAGCTACAACGA TGCCAGAC 4714 107 CCUCUCC A CCGGCAC 3431 GGAGAGGA GGCTAGCTACAACGA TGCCAGAC 4716 108 CAGCUGG A UAUCCUCU 3429 AGAGGATA GGCTAGCTACAACGA TGCCAGAC 4716 109 CCUUGCA A CCGGCACA 3432 TTCCCAGG GGCTAGCTACAACGA AGAGGAA 4717 110 GCCUGGAU A UCCUCUCC 3430 GGAGAGGA GGCTAGCTACAACGA AGAGGAA 4717 111 GCCUGAGA A CCCCCCU 3431 GGTAGCTACAACGA AGAGAGAGA 4717 112 UCCUACCG C CACCCGCA 3432 TTCGCGGTG GCTAGCTACAACGA AGAGAGAG 4717 1124 UCCUACCG C CACCCGCA 3433 TCTGCGGTG GCTAGCTACAACGA CGGTAGGA 4718 1136 CGCGCAGC A CCCCCUC 3431 TCTGCGGT GCTAGCTACAACGA CGGTAGGA 4719 1137 ACCCCCU G CAGCCGCC 3434 GCGGTGG GCTAGCTACAACGA CGGTAGGA 4719 1136 CCGCAGAC C CCCCUGCA 3433 TCTGCGGTG GCTAGCTACAACGA CGGGTAGGA 4720 1137 ACCCCCU G CAGCCGCC 3434 GCGGGTG GCTAGCTACAACGA CGGGTAGGA 4721 1140 CCGCCGCA G CCCCUGCA 3434 GCGGGTG GCTAGCTACAACGA CGGGGTG 4722 1141 ACCCCCCC G CCCCCGCA 3434 GCGGGTG GCTAGCTACAACGA CGGGGGC 4722 1142 ACCCCCCC G CAGCGCC 3449 GCGGGGG GCTAGCTACAACGA CGGGGGG 4722 1144 ACCCCCCC G CGCCGCC 3440 GCGGGGG GCTAGCTACAACGA CGGGGGG 4722 1145 CCC		GUCGCUGC G UUUCCUCU	3414	AGAGGAAA GGCTAGCTACAACGA GCAGCGAC	4700
62 CUGCCUGC G COGGGCAI 3417 ATGCCCGG GGCTAGCTACAACGA GCAGGGCA 4703 67 UGGCCGG G CALCACUU 3418 AAGTGATG GGCTAGCTACAACGA CCCGGGCA 4704 69 CGCCGGGC A UCACUUG 3419 GCAGTAG GCCTAGCTACAACGA GCCGGGG 4706 76 JUCACUU G CGCGCCG 3421 GCGGCGC GGCTAGCTACAACGA AAGTGATG 4706 77 JUCACUU G CGCGCAGA 3422 CTGCGGCG GGCTAGCTACAACGA AAGTGATG 4707 80 ACUUGCGC G CGCGAGAA 3423 TTCTGCGG GGCTAGCTACAACGA GCAGAAAT 4709 90 CGCAGAAA 3423 TTCTGCGG GGCTAGCTACAACGA GCCAGAAT 4709 90 CGCAGAAA G UCCGGCCG 3425 CAGACGGG GCTAGCTACAACGA GGCAGCTACTACACGA GGACTTCC 4711 102 GUCCGCCG C CUCGGAUA 3427 CCAGACGG GCTAGCTACAACGA CCAGACGAC 4714 102 GUCCGG	56	nnncenen e cenecece	3415	GGCGCAGG GGCTAGCTACAACGA AGAGGAAA	4701
67 UGCGCGGG G CAUCACUU 3418 AAGTGATG GGCTAGCTACAACGA CCGGCGCA 4704 69 CGCCGGGC A UCACUUGC 3419 GCAAGTGA GGCTAGCTACAACGA GCCCGGCG 4705 72 CGGGCAIC A CUUGCGGGG 3420 CGCGCAAG GGCTAGCTACAACGA GCCCGGCG 4706 76 UCACUUG G CGCGCCGC 3421 GCGGCGG GGCTAGCTACAACGA AAGTGATG 4707 78 UCACUUG G CGCGCGCG 3422 CTGCGGGG GGCTAGCTACAACGA AAGTGATG 4707 78 UCACUUG G CGCGCAAGA 3422 CTGCGGGG GGCTAGCTACAACGA AAGTGATG 4707 78 UCACUUG G CCGCAGAA 3423 TTCTGCGG GGCTAGCTACAACGA GCGAAGTGA 4708 80 ACUUGCGC G CCGCAGAA 3423 TTCTGCGG GGCTAGCTACAACGA GCGCAAGT 4709 91 UCGCGGAAA G UCCGUCUG 3425 CAGACGGA GGCTAGCTACAACGA GCGCAAGT 4710 92 CGCAGAAA G UCCGUCUG 3425 CAGACGGA GGCTAGCTACAACGA GGCGCACA 4710 93 UCCGUCUG G CAGCCUGG 3427 CCAGGGCG GGCTAGCTACAACGA GGCCTACAACGA 4711 104 CAGCCUGG A UAUCCUCU 3428 TATCCACG GGCTAGCTACAACGA GGACTTC 4712 105 CAGCCUGG A UAUCCUCU 3429 AGAGGATA GGCTAGCTACAACGA CCAGGCT 4715 106 CCUGGAU A UCCUCUC 3423 GGAGGATA GGCTAGCTACAACGA CCAGGCT 4715 110 GCCUGGAU A UCCUCUC 3431 GGTGCCGG GGCTAGCTACAACGA CCAGGCT 4716 120 CCUCUCCU A CCGCCAC 3431 GGTGCCGG GGCTAGCTACAACGA ACCAGACGA 4714 121 UCCUACCG G CACCCGCA 3432 TGCGGGTG GGCTAGCTACAACGA ACCAGACGA 4716 122 CUCUCUCU A CCGGCACC 3431 GGTGCCGG GGCTAGCTACAACGA CCGGTAGG 4715 124 UCCUACCG G CACCCGCA 3432 TGCGGGTG GGCTAGCTACAACGA CGGTAGGA 4719 125 CUACCGC A CCCCGCA 3433 TCTGGCGG GGCTAGCTACAACGA CGGTAGGA 4719 126 CUACCGC G CAGACACC 3431 GGCGTCTG GGCTAGCTACAACGA CGGTAGGA 4719 130 CGGCACC G CAGCCGCU 3435 TCTGCGGG GGCTAGCTACAACGA CGGTAGGA 4719 131 CGGCACCC G CAGCCGCG 3431 GGCGGCTG GGCTAGCTACAACGA CGGTAGGA 4720 132 ACCCCCU G CAGCCCCU 3435 TCCGGGGG GGCTAGCTACAACGA CTGCGGGG 4721 134 ACCCGCAG A CGCCCUGC 3435 TCCAGGGG GGCTAGCTACAACGA CGGCGGC 4722 142 ACCCCCU G CAGCCGCC 3437 GCCGGGGG GGCTAGCTACAACGA CGGGGGC 4722 143 ACCCCCU G CAGCCGCC 3437 GCCGGGGG GGCTAGCTACAACGA CGGGGGC 4722 144 CCCCCCGG G CCGCGGG 3441 CCCGGGGG GGCTAGCTACAACGA CGGGGGC 4722 145 CCCCCGCG G CCCCGGG 3441 CCCGGGG GGCTAGCTACAACGA CGGGGGC 4722 147 CCGCCCC G CGGCGCG 3441 CCCGGGG GGCTAGCTACAACGA CGGGGGC 4723 145 CCCCCCG G CGCCGCG 3441 CCCGGGG GGCT	60	cucueccu e cecceeec	3416	GCCCGGCG GGCTAGCTACAACGA AGGCAGAG	4702
69 CGCCGGGC A UCACUUEC 3419 GCAAGTGA GGCTAGCTACAACGA GCCCGGCG 4705 72 CGGGCAUC A CUUGCGCG 3420 CGCGCAAG GGCTAGCTACAACGA GATGCCC 4706 76 JUCACUUG G CGCCGCAG 3421 GCGGCGGG GGCTAGCTACAACGA AAGTGAT 4707 78 UCACUUGC G CGCCGCAG 3422 CTGCGGC G GGCTAGCTACAACGA GCGAAGTGA 4708 80 ACUUGCGC G CGCCAGAA 3423 TTCTGCGG GGCTAGCTACAACGA GCGCCCAC 4710 90 CGCAGAAA G UCCGUCUG 3425 CAGACGGA GGCTAGCTACAACGA GGCCGCCAC 4711 90 CGCAGAAA G UCCGUCUG 3425 CAGACGGA GGCTAGCTACAACGA TCTCTGCG 4711 90 UCCGUCUG G CAGCCUGG 3427 CCAGGCTG GGCTAGCTACAACGA TGCCAGAC A713 102 GUCUGGCA G CCUGGAUA 3428 TATCCAGG GGCTAGCTACAACGA TGCCAGAC 4714 108 CAGCCUGG A ULUCCUCU 3429 AGAGGATA GGCTACAACGA TCCAGGC 4715 110 GCCUGGAU A UCCUCUC 3430 GGAGAGGA GGCTACAACGA ACGA ACGAGCAC 4716 126 UCCUCUCU A CCGGCACA 3431 GGTGCCGGGGGCTACAACGA CCGGCTAGGAGAACACACACACACACACACACACACACAC	62	CUGCCUGC G CCGGGCAU	3417	ATGCCCGG GGCTAGCTACAACGA GCAGGCAG	4703
72 CGGGCADC A CUUGCGCG 3420 CGCGCAAG GGCTAGCTACAACGA GATGCCCC 4706 76 JAUCACUU G CGCGCCGC 3421 GCGGCGCG GGCTAGCTACAACGA AAGTGATQ 4707 78 UCACUUGC G CGCGCGCAG 3422 CTGCGGCG GGCTAGCTACAACGA CAAGTGA 4708 80 ACUUGCGC G CGCGCAGA 3422 CTGCGGCG GGCTAGCTACAACGA GGCGCGCA 4710 81 UGCGCGC G CAGAAAGU 3424 ACTTTCTG GGCTACCAACGA GGCGCGCA 4710 90 CGCAGAAA G UCCGUCUG 3425 CAGACGGA GGCTAGCTACAACGA GGCCTACCAACGA 4711 94 GAAAGUC G UCUGCAG 3426 CTGCCAGA GGCTAGCTACAACGA CAGACGA 4711 102 GUCUGCA G CCUGGAUA 3428 TATCCAGG GGCTAGCTACAACGA CAGACGA 4714 108 CAGCCUGA A UDUCCUCC 3430 GGAGAGGA GGCTACCTACAACGA ACCGACCA 4716 120 CCUCUCCU A CCGGCACA 3431 GGTGCCGG GGCTAGCTACAACGA ACCGACGA 4717 124 UCCUACCG G CACCCCACA 3433 TCTGCGGG GGCTAGCTACAACGA GGGTAGCA 4720 130 CGGCACC G CACCCCCAA 3433 TCTGCGGG GGCTAGCTACAACGA GGGTAGCACACACACACACACACACACACACACACA	67	UGCGCCGG G CAUCACUU	3418	AAGTGATG GGCTAGCTACAACGA CCGGCGCA	4704
76 JAUCACUU G CGCGCCGC 3421 GCGGCGC GGCTAGCTACAACGA AAGTGATC 4707 78 UCACUUGC G CGCCGCAG 3422 CTGCGGCG GGCTAGCTACAACGA GCAAGTGA 4708 80 ACUUGCGC G CGCAGAA 3423 TTCTGCGG GGCTAGCTACAACGA GCGCAAGT 4709 83 UGCGCGC G CAGAAAGU 3424 ACTTCTG GGCTAGCTACAACGA GGCCGCA 4710 90 UGCGAGAAA UCCGUCUG 3425 CAGACGGA GCTAGCTACAACGA GGACTTCC 4711 94 GAAAGUCC G UCUGGCAG 3426 CTSCCAGA GGCTAGCTACAACGA CAGACTTCC 4712 99 UCCGUCUG G CAGCCUGG 3427 CCAGGCTG GGCTAGCTACAACGA CAGACGA 4714 108 CAGCCUGA A UCUCUCU 3429 AGAGGAA GGCTAGCTACAACGA CAGAGCA 4715 110 GCCUGGAU A UCUCUCU 3430 GGAGGAGA GGCTAGCTACAACGA ACGACAGA 4716 120 CUCUACCG G CACCCCCA 3431 GGTGCGTACCTACAACGA AGGAAGGA 4717 124 UCCUACCG G CACCCCCA 3433 TCTGCGGG GGCTAGCTACAACGA AGGACGGCGA 4719 130 CGGCACCC G CAGACGCC 3434 GCGCTAGCTACAACGA GGCTGCGAA	69	CGCCGGGC A UCACUUGC	3419	GCAAGTGA GGCTAGCTACAACGA GCCCGGCG	4705
TOTAL TOTA	72	CGGGCAUC A CUUGCGCG	3420	CGCGCAAG GGCTAGCTACAACGA GATGCCCG	4706
80 ACUUGCGC G CCGCAGAA 3423 TTCTGCGG GGCTAGCTACAACGA GCGCAAGT 4709 83 UGCGCGCC G CAGAAAGU 3424 ACTTCTG GGCTAGCTACAACGA GGCGCAAGT 4710 90 CGCAGAAAA G UCCGUCUG 3425 CAGACGGA GGCTAGCTACAACGA GGCGCAGA 4711 94 GAAAGUCC G UCUGGCAG 3426 CTGCCAGA GGCTAGCTACAACGA CAGACGAA 4712 99 UCCGUCUG G CAGCCUGG 3427 CCAGGCTG GGCTAGCTACAACGA CAGACGAA 4713 102 GUCUGGCA G CCUGGAUA 3428 TATCCAGG GGCTAGCTACAACGA TGCCAGAC 4714 108 CAGCCUGG A UAUCCUCU 3429 AGAGGATA GGCTACAACGA ATCCAGCA CAGACGA 4715 110 GCCUGUCU A CCGGCACC 3431 GGTGCCGG GGCTAGCTACAACGA ATCCAGCA 4716 120 CCUCUCCU A CCGGCACA 3432 TCGCGGG GGCTAGCTACAACGA CGGTAGA 4718 121 UCCUACCG C CACCCGCA 3433 TCTGCGGG GGCTAGCTACAACGA CGGTAGAGA 4718 122 UCCUACCG C CAGACGC 3434 GGCGTCTG GGCTAGCTACAACGA CGGCGGTAG 4718 130 CGGCAGAC G CCCCUGCA 3435 CAGGGGG GGCTAGCTACAACGA CGTCTGCGG 4	7€ .	AUCACUU G CGCGCCGC	3421	GCGGCGCG GGCTAGCTACAACGA AAGTGATG	4707
83 UGCGCGCC G CAGAAAGU 3424 ACTTTCTG GGCTAGCTACAACGA GGCGCGCA 4710 90 CGCAGAAA G UCCGUCUG 3425 CAGACGGA GGCTAGCTACAACGA TTTCTGCG 4711 94 GAAAGUCC G UCUGGCAG 3426 CTGCCAGA GGCTAGCTACAACGA GGACTTTC 4712 99 UCCGUCUG G CAGCCUGG 3427 CCAGGCTG GGCTAGCTACAACGA CAGACGGA 4714 102 GUCUGGCA G CCUGGAUA 3428 TATCCAGG GGCTAGCTACAACGA CAGACGACAGACACACACACACACACACACAC	78	UCACUUGC G CGCCGCAG	3422	CTGCGGCG GGCTAGCTACAACGA GCAAGTGA	4708
90 C9CAGAAA G UCCGUCUG 3425 CAGACGGA GGCTAGCTACAACGA TTTCTGGG 4711 94 GAAAGUCC G UCUGGCAG 3426 CTGCCAGA GGCTAGCTACAACGA GGACTTTC 4712 99 UCCGUCUG G CAGCCUGG 3427 CCAGGCTG GGCTAGCTACAACGA CAGACGGA 4713 102 GUCUGGCA G CCUGGATA 3428 TATCCAGG GGCTAGCTACAACGA CAGACGGA 4714 108 CAGCCUGG A UAUCCUCU 3429 AGAGGATA GGCTAGCTACAACGA CCAGGCTG 4715 110 GCCUGGAU A UCCUCUCC 3430 GGAAGGA GGCTAGCTACAACGA CCAGGCTG 4715 110 GCCUGGAU A UCCUCUCC 3431 GGTGCCGG GGCTAGCTACAACGA ATCCAGGC 4716 120 CCUCUCCU A CCGGCACC 3431 GGTGCCGG GGCTAGCTACAACGA AGGAGAGAG 4717 124 UCCUACCG G CACCCGCA 3432 TCCGGGTG GGCTAGCTACAACGA AGGAGAGAG 4717 125 CUACCGGC A CCCGCAGA 3433 TCTGCGGG GGCTAGCTACAACGA GGCGGTAG 4719 130 CGGCACCC G CAGACGC 3434 GGCGTCTG GGCTAGCTACAACGA GGCGGTAG 4719 130 CGGCACCC G CAGACGCC 3434 GGCGTCTG GGCTAGCTACAACGA GGGTGCCG 4720 134 ACCCGCAG A CGCCCUG 3435 CAGGGGGG GGCTAGCTACAACGA GGGTGCCG 4721 135 CCGCAGAC G CCCCUGCA 3436 TGCAGGGG GGCTAGCTACAACGA GGGTGCCG 4721 142 ACGCCCCU G CAGCCGCC 3437 GGCGGCT GGCTAGCTACAACGA GGGTGCCG 4722 142 ACGCCCU G CAGCCGCC 3437 GGCGGCT GGCTAGCTACAACGA GGGTGCAG 4722 145 CCCCUGCA G CCGCCGGU 3438 ACCGGCGT GGCTAGCTACAACGA GGCTGCGA 4724 146 CUGCAGCC G CCGCCGGU 3438 ACCGGCGG GGCTAGCTACAACGA GGCTGCAG 4725 152 AGCCGCC G CCGCCGGU 3438 ACCGGCGG GGCTAGCTACAACGA GGCTGCAG 4725 153 AGCCGCCG G CCGGCGGU 3440 GGCGCGGA GGCTAGCTACAACGA GGCTGCAG 4725 154 CCCCUGCA G CCCGGGGU 3441 CCCGGGG GGCTAGCTACAACGA GGCGGCGC 4726 155 CCCCUGCA G CCCGGGGU 3441 CCCGGGG GGCTAGCTACAACGA CGACGGC 4727 158 CGGUCGG G CCCCGGG 3441 CCCGGGG GGCTAGCTACAACGA CGACGGC 4728 164 GCGCCCC G CGGCCGC 3440 GGCCGGG GGCTAGCTACAACGA CGACGGC 4729 172 CUCCCUA G CCCGCGGG 3441 CCCGGGG GGCTAGCTACAACGA CGACGGC 4729 173 CUACCCU G UGCGCCC 3444 GCACAGGG GGCTAGCTACAACGA CGACGGC 4729 174 CUACCCC G CCGCGGGC 3444 GCACAGGG GGCTAGCTACAACGA CGACGGG CTACAACGA CGACGGC 4729 175 CUACCCU G UGCGCCC 3444 GCACAGGG GGCTAGCTACAACGA CGACGGCC 4729 176 CUCCCUA G CCCCCGGG GCCCGGGCG GGCTAGCTACAACGA CGACGGGC 4730 177 CUAGCCCU G UGCGCC 3444 GCACAGGG GGCTAGCTACAACGA AGGGCTAGCTACAACGA CCAAGGGC 4731 186 UG	80	ACUUGCGC G CCGCAGAA	3423	TTCTGCGG GGCTAGCTACAACGA GCGCAAGT	4709
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124 UCCUACOG G CACCOGCA 3432 TGCGGGTG GGCTAGCTACAACGA CGGTAGGA 4718 126 CUACOGGC A CCOGCAGA 3433 TCTGCGGG GGCTAGCTACAACGA GCCGGTAG 4719 130 CGGCACCC G CAGACGCC 3434 GGCGTCTG GGCTAGCTACAACGA GCCGGTAG 4720 134 ACCCGCAG A CGCCCCUG 3435 CAGGGGCG GGCTAGCTACAACGA CTGCGGGT 4721 136 CCGCAGAC G CCCCUGCA 3436 TGCAGGGG GGCTAGCTACAACGA GTCTGCGG 4722 142 ACGCCCCU G CAGCCGCC 3437 GGCGGCT GGCTAGCTACAACGA GTCTGCGG 4722 143 CCCCUGCA G CCGCCGGU 3438 ACCGGCGG GGCTAGCTACAACGA AGGGGCGT 4723 145 CCCCUGCA G CCGCCGGU 3438 ACCGGCGG GGCTAGCTACAACGA TGCAGGGG 4724 148 CUGCAGCC G CCGGUCGG 3439 CCGACCGG GGCTAGCTACAACGA GGCTGCAG 4725 152 AGCCGCCG G UCGGCGC 3440 GGCGCCGA GGCTAGCTACAACGA CGGCGGCT 4726 156 GCCGGUCG G CGCCCGGG 3441 CCCGGGGG GGCTAGCTACAACGA CGGCCGGC 4727 158 CGGUCGG G CCCCGGGCU 3442 AGCCCCGG GGCTAGCTACAACGA CGACCGG 4728 164 GCGCCCGG G CUCCCUAG 3443 CTAGGGAG GGCTAGCTACAACGA CCGGCCGC 4728 172 GCUCCCUA G CCCUGUGC 3444 GCACAGGG GGCTAGCTACAACGA CCGGCCGC 4729 173 CUAGCCCU G UGCGCUCA 3444 GCACAGGG GGCTAGCTACAACGA CCGGCGCC 4730 177 CUAGCCCU G UGCGCUCA 3445 TGAGGGG GGCTAGCTACAACGA AGGGCTAG 4731 179 AGCCCUGU G CGCUCAAC 3446 GTTGAGC GGCTAGCTACAACGA ACAGGGCT 4732 181 CCCUGUGC G CUCAACUG 3447 CAGTTAGA GGCTAGCTACAACGA ACAGGGCT 4734 189 GCUCAACU G UCCUCAG 3448 CAGGACAG GGCTAGCTACAACGA ACAGGGC 4733 186 UGCGCUCA A CUGUCCUG 3448 CAGGACAG GGCTAGCTACAACGA ACAGGGC 4734 189 GCUCAACU G UCCUCGGC 3449 GCGCAGGG GGCTAGCTACAACGA ACAGGGC 4735 194 ACUGUCU G CGCUGCG 3449 GCGCAGG GGCTAGCTACAACGA ACAGGGC 4735 194 ACUGUCCU G CGCUGCG 3450 CCCCCGCG GGCTAGCTACAACGA ACGACAG 4736 196 UGUCCUGC G CUGCGGG 3451 CCCCCCGG GGCTAGCTACAACGA AGGACAG 4736 196 UGUCCUGC G CUGCGGG 3451 CCCCCCGG GGCTAGCTACAACGA AGGACAG 4736 196 UGUCCUGC G CUGCGGG 3451 CCCCCCG GGCTAGCTACAACGA AGGACAG 4736 196 UGUCCUGC G CUGCGGG 3451 CCCCCCGG GGCTAGCTACAACGA AGGACAG 4736 196 UGUCCUGC G CUGCGGG 3452 GCCCCCG GGCTAGCTACAACGA AGGACAG 4736	110	GCCUGGAU A UCCUCUCC	3430	GGAGAGGA GGCTAGCTACAACGA ATCCAGGC	4716
126 CUACCGGC A CCCGCAGA 3433 TCTGCGGG GGCTAGCTACAACGA GCCGGTAG 4719 130 CGGCACCC G CAGACGCC 3434 GGCGTCTG GGCTAGCTACAACGA GGCTGCCG 4720 134 ACCCGCAG A CGCCCCUG 3435 CAGGGGCG GGCTAGCTACAACGA CTGCGGGT 4721 136 CCGCAGAC G CCCCUGCA 3436 TGCAGGGG GGCTAGCTACAACGA GTCTGCGG 4722 142 ACGCCCCU G CAGCCGCC 3437 GGCGGCTG GGCTAGCTACAACGA AGGGGCGT 4723 145 CCCCUGCA G CCGCCGGU 3438 ACCGGCGG GGCTAGCTACAACGA AGGGGCGT 4724 148 CUGCAGCC G CCGCGGU 3439 CCGACCGG GGCTAGCTACAACGA GGCTGCAG 4725 152 AGCCCCCG G UCGGCGC 3440 GGCGCCGA GGCTAGCTACAACGA GGCTGCAG 4726 156 GCCGGUCG G UCGGCCC 3441 CCCGGGCG GGCTAGCTACAACGA CGACCGGC 4727 158 CGGUCGGC G CCCGGGCU 3442 AGCCCCGG GGCTAGCTACAACGA CGACCGGC 4728 164 GCGCCCGG G CUCCCUAG 3443 CTAGGGAG GGCTAGCTACAACGA CCGACCGG 4728 172 GCUCCCUA G CCCUGUGC 3444 GCACAGGG GGCTAGCTACAACGA CCGGCCGC 4729 173 GCUCCCUA G CCCUGUGC 3444 GCACAGGG GGCTAGCTACAACGA CCGGCCGC 4730 177 CUAGCCCU G UGCGCUCA 3445 TGAGGGCG GGCTAGCTACAACGA AGGGCTAG 4731 179 AGCCCUU G CGCUCAAC 3446 GTTGAGCG GGCTAGCTACAACGA AGGGCTAG 4731 181 CCCUGUGC G CUCAACUG 3447 CAGTTGAG GGCTAGCTACAACGA ACAGGGCT 4732 181 CCCUGUCC G CUCAACUG 3448 CAGGACAG GGCTAGCTACAACGA ACAGGGCT 4734 189 GCUCAACU G UCCUCGGC 3449 GCGCAGGG GGCTAGCTACAACGA ACAGGGC 4735 194 ACUGUCUC G CGCUGCGG 3450 CCCCCCAG GGCTAGCTACAACGA ACAGAGCA 4736 195 UGUCCUCC G CGCCGGG 3451 CCCCCCAG GGCTAGCTACAACGA ACAGAGC 4736 196 UGUCCUCC G CGCCGGG 3451 CCCCCCAGG GGCTAGCTACAACGA ACAGAGCA 4736 196 UGUCCUCC G CGCCGGG 3451 CCCCCCAGG GGCTAGCTACAACGA AGGACAGT 4736 197 ACUGUCCU G CGCUGCGG 3450 CCCCCCAGG GGCTAGCTACAACGA AGGACAGT 4736 196 UGUCCUCC G CGCGGGG 3451 CCCCCCAGG GCCTAGCTACAACGA AGGACAACGA 4737 199 CCUCCCUC G CGGGGUGC 3452 GCCCCCCG GGCTAGCTACAACGA AGGACAACGA 4737 199 CCUCCCUC G CGGGGUGC 3452 GCCCCCCG GGCTAGCTACAACGA AGGACAACGA 4737 199 CCUCCCUC G CGGGGUGC 3452 GCCCCCCG GGCTAGCTACAACGA AGGACAACGA 4737	120	CCUCUCCU A CCGGCACC	3431	GGTGCCGG GGCTAGCTACAACGA AGGAGAGG	4717
130 CGGCACCC G CAGACGCC 3434 GGCGTCTG GGCTAGCTACAACGA GGGTGCCG 4720 134 ACCCGCAG A CGCCCCUG 3435 CAGGGGCG GGCTAGCTACAACGA CTGCGGGT 4721 136 CGGCAGAC G CCCCUGCA 3436 TGCAGGGG GGCTAGCTACAACGA GTCTGCGG 4722 142 ACGCCCCU G CAGCCGCC 3437 GGCGGCTG GGCTAGCTACAACGA AGGGGCGT 4723 145 CCCCUGCA G CCGCCGGU 3438 ACCGGCGG GGCTAGCTACAACGA TGCAGGGG 4724 148 CUGCAGCC G CCGGCUGG 3439 CCGACCGG GGCTAGCTACAACGA TGCAGGGG 4725 152 AGCCGCCG G UCGGCGCC 3440 GGCGCCGA GGCTAGCTACAACGA CGACGGCG T4726 156 GCCGGUCG G CCGCCGGG 3441 CCCCGGGCG GGCTAGCTACAACGA CGACCGGC 4727 158 CGGUCGGC G CCCCGGGCU 3442 AGCCCGGG GGCTAGCTACAACGA CGACCGGC 4728 164 GCGCCCGG G CUCCCUAG 3443 CTAGGGAG GGCTAGCTACAACGA CCGACCG 4729 172 GCUCCCUA G CCCUGUGC 3444 GCACAGGG GGCTAGCTACAACGA CCGGCGCC 4729 173 GCUCCCUA G CCCUGUGC 3444 GCACAGGG GGCTAGCTACAACGA AGGGCTAG 4731 177 CUAGCCCU G UGCGCUCA 3445 TGAGCGCA GGCTAGCTACAACGA AGGGCTAG 4731 179 AGCCCUGU G CGCUCAAC 3446 GTTGAGCG GGCTAGCTACAACGA AGGGCTAG 4731 181 CCCUGUGC G CUCAACUG 3447 CAGTTCAG GGCTAGCTACAACGA ACAGGGCT 4732 181 CCCUGUGC G CUCAACUG 3448 CAGGACAG GGCTAGCTACAACGA ACAGGGCT 4734 189 GCUCAACU G UCCUGCGC 3449 GCGCAGGA GGCTAGCTACAACGA ACAGGGC 4734 189 GCUCAACU G UCCUGCGC 3449 GCGCAGGA GGCTAGCTACAACGA AGGACCAG 4734 189 GCUCAACU G UCCUGCGC 3449 GCGCAGGA GGCTAGCTACAACGA AGGACAGT 4736 194 ACUGUCCU G CGCGGGGG 3450 CCCCCGGGG GGCTAGCTACAACGA AGGACAGT 4736 195 UGUCCUGC G CUGCGGG 3450 CCCCCGGGG GGCTAGCTACAACGA AGGACAGT 4736 196 UGUCCUGC G CUGCGGG 3451 CCCCGCAG GGCTAGCTACAACGA AGGACAGT 4736 199 CCUGCCUG G CUGCGGGG 3451 CCCCCGCAG GGCTAGCTACAACGA AGGACAGT 4737 199 CCUGCCUG G CUGCGGG 3452 GCCCCCG GGCTAGCTACAACGA AGGACAGT 4737	124	UCCUACOG G CACCOGCA	3432	TGCGGGTG GGCTAGCTACAACGA CGGTAGGA	4718
ACCCGCAG A CGCCCCUG 3435 CAGGGGCG GGCTAGCTACAACGA CTGCGGGT 4721 136 CCGCAGAC G CCCCUGCA 3436 TGCAGGGG GGCTAGCTACAACGA GTCTGCGG 4722 142 ACGCCCCU G CAGCCGCC 3437 GGCGGCTG GGCTAGCTACAACGA AGGGGCGT 4723 145 CCCCUGCA G CCGCCGGU 3438 ACCGGCGG GGCTAGCTACAACGA AGGGGCGT 4724 148 CUGCAGCC G CCGGUCGG 3439 CCGACCGG GGCTAGCTACAACGA TGCAGGGG 4724 152 AGCCGCCG G UCGGCGCC 3440 GGCGCCGA GGCTAGCTACAACGA CGGCGGCT 4726 155 GCCGGUCG G CCCGGGG 3441 CCCGGGGCG GGCTAGCTACAACGA CGACCGGC 4727 158 CGGUCGC G CCCGGGCU 3442 AGCCCGGG GGCTAGCTACAACGA CGACCGGC 4728 164 GCGCCCGG G CUCCCUAG 3443 CTAGGGAG GGCTAGCTACAACGA CCGGCCGC 4729 172 GCUCCCUA G CCCUGUGC 3444 GCACAGGG GGCTAGCTACAACGA CCGGCCGC 4730 177 CUAGCCCU G UGCGCUCA 3445 TGAGCGCA GGCTAGCTACAACGA AGGGCTAG 4731 179 AGCCCUGU G CGCUCAAC 3446 GTTGAGCG GGCTAGCTACAACGA AGGGCTAG 4731 181 CCCUGUGC G CUCCAACUG 3447 CAGTTCAG GGCTAGCTACAACGA ACAGGGCT 4732 181 CCCUGUGC G CUCCAACUG 3448 CAGGACAG GGCTAGCTACAACGA ACAGGGCT 4732 181 CCCUGUGC G CUCCAACUG 3449 GCGCAGGG GGCTAGCTACAACGA ACAGGGC 4733 186 UGCGCUCA A CUGUCCUG 3449 GCGCAGGG GGCTAGCTACAACGA ACAGGGCT 4736 189 GCUCAACU G UCCUGCGC 3449 GCGCAGGG GGCTAGCTACAACGA AGGACAGG 4733 180 GCUCAACU G UCCUGCGC 3449 GCGCAGGG GGCTAGCTACAACGA AGGACAGC 4736 194 ACUGUCCU G CGCUGCGG 3451 CCCCGCAG GGCTAGCTACAACGA AGGACAGT 4736 195 UGUCCUGC G CUGCGGGG 3451 CCCCCGCAG GGCTAGCTACAACGA AGGACAGT 4736 196 UGUCCUGC G CUGCGGGG 3451 CCCCGCAG GGCTAGCTACAACGA AGGACAGG 4737 199 CCUGCGCU G CGGGGGGG 3452 GCCCCCC GGCTAGCTACAACGA AGCGCAGG 4738	126	CUACCGGC A CCCGCAGA	3433	TCTGCGGG GGCTAGCTACAACGA GCCGGTAG	4719
136 CCGCAGAC G CCCCUGCA 3436 TGCAGGGG GGCTAGCTACAACGA GTCTGCGG 4722 142 ACGCCCU G CAGCCGCC 3437 GGCGGCTG GGCTAGCTACAACGA AGGGGCGT 4723 145 CCCCUGCA G CCGCCGGU 3438 ACCGGCGG GGCTAGCTACAACGA TGCAGGGG 4724 148 CUGCAGCC G CCGCUGGG 3439 CCGACCGG GGCTAGCTACAACGA TGCAGGGG 4725 152 AGCCGCCG G UCGGCGCC 3440 GGCGCCGA GGCTAGCTACAACGA CGGCGGCT 4726 156 GCCGGUCG G UCGGCGCC 3441 CCCGGGGC GGCTAGCTACAACGA CGACCGGC 4727 158 CGGUCGCC G CCCCGGGC 3441 CCCGGGCG GGCTAGCTACAACGA CGACCGGC 4727 158 CGGUCGCC G CCCCGGGC 3442 AGCCCCGG GGCTAGCTACAACGA CGACCGGC 4728 164 GCGCCCGG G CUCCCUAG 3443 CTAGGGAG GGCTAGCTACAACGA CCGGCCGC 4729 172 GCUCCCUA G CCCUGUGC 3444 GCACAGGG GGCTAGCTACAACGA CCGGCGCC 4730 177 CUAGCCCU G UGCGCUCA 3445 TGAGCGCA GGCTAGCTACAACGA AGGGCTAG 4731 179 AGCCCUGU G CGCUCAAC 3446 GTTGAGCC GGCTAGCTACAACGA ACGGGCT 4732 181 CCCUGUGC G CUCCAACUG 3447 CAGTTGAG GGCTAGCTACAACGA ACGGGCT 4733 186 UGCGCUCA A CUGUCCUG 3448 CAGGACAG GGCTAGCTACAACGA TGAGCGCA 4734 189 GCUCAACU G UCCUGCGC 3449 GCGCAGGA GGCTAGCTACAACGA TGAGCGCA 4734 189 GCUCAACU G UCCUGCGC 3449 GCGCAGGA GGCTAGCTACAACGA AGGACAGT 4736 194 ACUGUCCU G CGCUGCGG 3450 CCCCCGCAG GGCTAGCTACAACGA AGGACAGT 4736 195 CCUCGCGC G CUGCGGG 3451 CCCCCGCAG GGCTAGCTACAACGA AGGACAGT 4736 196 UGUCCUGC G CUGCGGG 3451 CCCCGCAG GGCTAGCTACAACGA AGGACAGT 4736 199 CCUGCGCU G CGGGGGGC 3452 GCCCCCG GGCTAGCTACAACGA AGGACAGT 4737 199 CCUGCGCU G CGGGGGGG 3451 CCCCCGCAG GGCTAGCTACAACGA AGGACAGT 4737	130	CGGCACCC G CAGACGCC	3434	GGCGTCTG GGCTAGCTACAACGA GGGTGCCG	4720
142 ACSCCCU G CAGCCGCC 3437 GGCGGCTG GGCTAGCTACAACGA AGGGGCGT 4723 145 CCCUGCA G CCGCCGGU 3438 ACCGGCGG GGCTAGCTACAACGA TGCAGGGG 4724 148 CUGCAGCC G CCGGUCGG 3439 CCGACCGG GGCTAGCTACAACGA GGCTGCAG 4725 152 AGCCGCCG G UCGGCGCC 3440 GGCGCCGA GGCTAGCTACAACGA CGCCGGCT 4726 156 GCCGGUCG G CCCGGGG 3441 CCCGGGCG GGCTAGCTACAACGA CGACCGGC 4727 158 CGGUCGGC G CCCGGGCU 3442 AGCCCGGG GGCTAGCTACAACGA CGACCGGC 4728 164 GCGCCCGG G CUCCCUAG 3443 CTAGGGAG GGCTAGCTACAACGA CCGGCCGC 4729 172 GCUCCCUA G CCCUGUGC 3444 GCACAGGG GGCTAGCTACAACGA CCGGCGCC 4730 177 CUAGCCCU G UGCGCUCA 3445 TGAGCGCA GGCTAGCTACAACGA AGGGCTAG 4731 179 AGCCCUGU G CGCUCAAC 3446 GTTGAGCG GGCTAGCTACAACGA ACAGGGCT 4732 181 CCCUGUGC G CUCAACUG 3447 CAGTTGAG GGCTAGCTACAACGA ACAGGGCT 4733 186 UGCGCUCA A CUGUCCUG 3448 CAGGACAG GGCTAGCTACAACGA ACAGGGC 4733 187 ACUGUCCU G CCCUGCGC 3449 GCGCAGGG GGCTAGCTACAACGA AGGCCCA 4734 189 GCUCAACU G UCCUGCGC 3449 GCGCAGGA GGCTAGCTACAACGA AGGACAGC 4736 194 ACUGUCCU G CGCUGCGG 3450 CCCGCAGGG GGCTAGCTACAACGA AGGACAGT 4736 195 UGUCCUGC G CUGCGGG 3451 CCCCGCAG GGCTAGCTACAACGA AGGACAGT 4736 196 UGUCCUGC G CUGCGGGG 3451 CCCCGCAG GGCTAGCTACAACGA AGGACAGG 4737 199 CCUGCGCU G CGGGGGUGC 3452 GCACCCCG GGCTAGCTACAACGA AGCGCAGG 4738	134	ACCCGCAG A CGCCCCUG	3435	CAGGGGCG GGCTAGCTACAACGA CTGCGGGT	4721
145 CCCUGCA G CCGCCGGU 3438 ACCGGCGG GGCTAGCTACAACGA TGCAGGGG 4724 148 CUGCAGCC G CCGGUCGG 3439 CCGACCGG GGCTAGCTACAACGA GGCTGCAG 4725 152 AGCCGCCG G UCGGCGCC 3440 GGCGCCGA GGCTAGCTACAACGA CGGCGGCT 4726 156 GCCGGUCG G CCCGGGG 3441 CCCGGGGC GGCTAGCTACAACGA CGACCGGC 4727 158 CGGUCGGC G CCCGGGCU 3442 AGCCCGGG GGCTAGCTACAACGA CGACCGGC 4728 164 GCGCCCGG G CUCCCUAG 3443 CTAGGGAG GGCTAGCTACAACGA CCGGCCGC 4729 172 GCUCCCUA G CCCUGUGC 3444 GCACAGGG GGCTAGCTACAACGA CCGGCGCC 4730 177 CUAGCCCU G UGCGCUCA 3445 TGAGCGCA GGCTAGCTACAACGA AGGGCTAG 4731 179 AGCCCUGU G CGCUCAAC 3446 GTTGAGCG GGCTAGCTACAACGA ACAGGGCT 4732 181 CCCUGUGC G CUCAACUG 3447 CAGTTGAG GGCTAGCTACAACGA ACAGGGCT 4732 181 CCCUGUGC G CUCAACUG 3448 CAGGACAG GGCTAGCTACAACGA ACAGGGC 4733 186 UGCGCUCA A CUGUCCUG 3448 CAGGACAG GGCTAGCTACAACGA AGTTGAGC 4734 189 GCUCAACU G UCCUGCGC 3449 GCGCAGGA GGCTAGCTACAACGA AGTTGAGC 4735 194 ACUGUCCU G CGCUGCGG 3451 CCCCGCAGG GGCTAGCTACAACGA AGGACAGT 4736 196 UGUCCUGC G CUGCGGG 3451 CCCCGCAG GGCTAGCTACAACGA AGGACAGT 4737 199 CCUGCGCU G CGGGGGGG 3452 GCCCCCG GGCTAGCTACAACGA AGCGCAGG 4733	136	CCGCAGAC G CCCCUGCA	3436	TGCAGGGG GGCTAGCTACAACGA GTCTGCGG	4722
148 CUGCAGCC G COGGUCGG 3439 CCGACCGG GGCTAGCTACAACGA GGCTGCAG 4725 152 AGCCGCG G UCGGCGCC 3440 GGCGCCGA GGCTAGCTACAACGA CGGCGGCT 4726 156 GCCGGUCG G CGCCCGGG 3441 CCCGGGGCG GGCTAGCTACAACGA CGACCGGC 4727 158 CGGUCGGC G CCCGGGCU 3442 AGCCCGGG GGCTAGCTACAACGA GCCGACCG 4728 164 GCGCCCGG G CUCCCUAG 3443 CTAGGGAG GGCTAGCTACAACGA CCGGCGCC 4729 172 GCUCCCUA G CCCUGUGC 3444 GCACAGGG GGCTAGCTACAACGA TAGGGAGC 4730 177 CUAGCCCU G UGCGCUCA 3445 TGAGCGCA GGCTAGCTACAACGA AGGGCTAG 4731 179 AGCCCUGU G CGCUCAAC 3446 GTTGAGCG GGCTAGCTACAACGA ACAGGGCT 4732 181 CCCUGUGC G CUCAACUG 3447 CAGTTGAG GGCTAGCTACAACGA ACAGGGCT 4733 186 UGCGCUCA A CUGUCCUG 3448 CAGGACAG GGCTAGCTACAACGA AGGGCCA 4734 189 GCUCAACU G UCCUGCGC 3449 GCGCAGGA GGCTAGCTACAACGA AGTTGAGC 4735 194 ACUGUCCU G CGCUGCGG 3450 CCGCAGGA GGCTAGCTACAACGA AGGACAGT 4736 196 UGUCCUGC G CUGCGGGG 3451 CCCCCGCAG GGCTAGCTACAACGA AGGACAGT 4737 199 CCUCGCCU G CGGGGUGC 3452 GCCCCCCG GGCTAGCTACAACGA AGCGCAGG 4738	142	ACGCCCCU G CAGCCGCC	3437	GGCGGCTG GGCTAGCTACAACGA AGGGGCGT	4723
152 AGCCGCCG G UCGGCGCC 3440 GGCGCCGA GGCTAGCTACAACGA CGGCGGCT 4726 156 GCCGGUCG G CGCCCGGG 3441 CCCGGGCG GGCTAGCTACAACGA CGACCGGC 4727 158 CGGUCGGC G CCCGGGCU 3442 AGCCCGGG GGCTAGCTACAACGA GCCGACCG 4728 164 GCGCCCGG G CUCCCUAG 3443 CTAGGGAG GGCTAGCTACAACGA CCGGGCGC 4729 172 GCUCCCUA G CCCUGUGC 3444 GCACAGGG GGCTAGCTACAACGA TAGGGAGC 4730 177 CUAGCCCU G UGCGCUCA 3445 TGAGCGCA GGCTAGCTACAACGA AGGGCTAG 4731 179 AGCCCUGU G CGCUCAAC 3446 GTTGAGCG GGCTAGCTACAACGA ACAGGGCT 4732 181 CCCUGUGC G CUCAACUG 3447 CAGTTGAG GGCTAGCTACAACGA ACAGGGCT 4733 186 UGCGCUCA A CUGUCCUG 3448 CAGGACAG GGCTAGCTACAACGA TGAGCGCA 4734 189 GCUCAACU G UCCUGCGC 3449 GCGCAGGA GGCTAGCTACAACGA AGTTGAGC 4735 194 ACUGUCCU G CGCUGCGG 3450 CCGCAGGA GGCTAGCTACAACGA AGGACAGT 4736 196 UGUCCUGC G CUGCGGGG 3451 CCCCGCAG GGCTAGCTACAACGA AGGACAGT 4737 199 CCUCGCGC G CUGCGGGG 3452 GCCCCCG GGCTAGCTACAACGA AGCGCAGG 4738	145	CCCCUGCA G CCGCCGGU	3438	ACCGGCGG GGCTAGCTACAACGA TGCAGGGG	4724
156 GCCGGUCG G CGCCCGGG 3441 CCCGGGCG GGCTAGCTACAACGA CGACCGGC 4727 158 CGGUCGGC G CCCGGGCU 3442 AGCCCGGG GGCTAGCTACAACGA GCCGACCG 4728 164 GCGCCCGG G CUCCCUAG 3443 CTAGGGAG GGCTAGCTACAACGA CCGGGCGC 4729 172 GCUCCCUA G CCCUGUGC 3444 GCACAGGG GGCTAGCTACAACGA TAGGGAGC 4730 177 CUAGCCCU G UGCGCUCA 3445 TGAGCGCA GGCTAGCTACAACGA AGGGCTAG 4731 179 AGCCCUGU G CGCUCAAC 3446 GTTGAGCG GGCTAGCTACAACGA ACAGGGCT 4732 181 CCCUGUGC G CUCAACUG 3447 CAGTTGAG GGCTAGCTACAACGA ACAGGGCT 4733 186 UGCGCUCA A CUGUCCUG 3448 CAGGACAG GGCTAGCTACAACGA TGAGCGCA 4734 189 GCUCAACU G UCCUGCGC 3449 GCGCAGGA GGCTAGCTACAACGA AGTTGAGC 4735 194 ACUGUCCU G CGCUGCGG 3450 CCGCAGCA GGCTAGCTACAACGA AGGACAGT 4736 196 UGUCCUGC G CUGCGGGG 3451 CCCCGCAG GGCTAGCTACAACGA GCACAGGA 4737 199 CCUGCGCU G CGGGGGUGC 3452 GCACCCCG GGCTAGCTACAACGA AGCGCAGG 4738	148	CUGCAGCC G CCGGUCGG	3439	CCGACCGG GGCTAGCTACAACGA GGCTGCAG	4725
158 CGGUCGGC G CCCGGGCU 3442 AGCCCGGG GGCTAGCTACAACGA GCCGACCG 4728 164 GCGCCCGG G CUCCCUAG 3443 CTAGGGAG GGCTAGCTACAACGA CCGGGCGC 4729 172 GCUCCCUA G CCCUGUGC 3444 GCACAGGG GGCTAGCTACAACGA TAGGGAGC 4730 177 CUAGCCCU G UGCGCUCA 3445 TGAGCGCA GGCTAGCTACAACGA AGGGCTAG 4731 179 AGCCCUGU G CGCUCAACU 3446 GTTGAGCG GGCTAGCTACAACGA ACAGGGCT 4732 181 CCCUGUGC G CUCAACUG 3447 CAGTTGAG GGCTAGCTACAACGA GCACAGGG 4733 186 UGCGCUCA A CUGUCCUG 3448 CAGGACAG GGCTAGCTACAACGA TGAGCGCA 4734 189 GCUCAACU G UCCUGCGC 3449 GCGCAGGA GGCTAGCTACAACGA AGTTGAGC 4735 194 ACUGUCCU G CGCUGCGG 3450 CCGCAGCA GGCTAGCTACAACGA AGGACAGT 4736 196 UGUCCUGC G CUGCGGGG 3451 CCCCGCAG GGCTAGCTACAACGA GCACAGGA 4737 199 CCUGCGCU G CGGGGGUGC 3452 GCCCCCCG GGCTAGCTACAACGA AGCGCAGG 4738	152	AGCCGCCG G UCGGCGCC	3440	GGCGCCGA GGCTAGCTACAACGA CGGCGGCT	4726
164 GCGCCCGG G CUCCCUAG 3443 CTAGGGAG GGCTAGCTACAACGA CCGGGCGC 4729 172 GCUCCCUA G CCCUGUGC 3444 GCACAGGG GGCTAGCTACAACGA TAGGGAGC 4730 177 CUAGCCCU G UGCGCUCA 3445 TGAGCGCA GGCTAGCTACAACGA AGGGCTAG 4731 179 AGCCCUGU G CGCUCAAC 3446 GTTGAGCG GGCTAGCTACAACGA ACAGGGCT 4732 181 CCCUGUGC G CUCAACUG 3447 CAGTTGAG GGCTAGCTACAACGA GCACAGGG 4733 186 UGCGCUCA A CUGUCCUG 3448 CAGGACAG GGCTAGCTACAACGA TGAGCGCA 4734 189 GCUCAACU G UCCUGCGC 3449 GCGCAGGA GGCTAGCTACAACGA AGTTGAGC 4735 194 ACUGUCCU G CGCUGCGG 3450 CCGCAGGA GGCTAGCTACAACGA AGGACAGT 4736 196 UGUCCUGC G CUGCGGG 3451 CCCCGCAG GGCTAGCTACAACGA AGGACAGT 4737 199 CCUGCGCU G CGGGGGUGC 3452 GCACCCCG GGCTAGCTACAACGA AGCGCAGG 4738	156	GCCCGGUCG G CGCCCGGGG	3441	CCCGGGCG GGCTAGCTACAACGA CGACCGGC	4727
172 GCUCCCUA G CCCUGUGC 3444 GCACAGGG GGCTAGCTACAACGA TAGGGAGC 4730 177 CUAGCCCU G UGCGCUCA 3445 TGAGCGCA GGCTAGCTACAACGA AGGGCTAG 4731 179 AGCCCUGU G CGCUCAAC 3446 GTTGAGCG GGCTAGCTACAACGA ACAGGGCT 4732 181 CCCUGUGC G CUCAACUG 3447 CAGTTGAG GGCTAGCTACAACGA GCACAGGG 4733 186 UGCGCUCA A CUGUCCUG 3448 CAGGACAG GGCTAGCTACAACGA TGAGCGCA 4734 189 GCUCAACU G UCCUGCGC 3449 GCGCAGGA GGCTAGCTACAACGA AGTTGAGC 4735 194 ACUGUCCU G CGCUGCGG 3450 CCGCAGCA GGCTAGCTACAACGA AGGACAGT 4736 195 UGUCCUGC G CUGCGGG 3451 CCCCGCAG GGCTAGCTACAACGA GCACAGAC 4737 199 CCUGCGCU G CGGGGUGC 3452 GCACCCCG GGCTAGCTACAACGA AGCGCAGG 4738	158	CGGUCGGC G CCCGGGCU	3442	AGCCCGGG GGCTAGCTACAACGA GCCGACCG	4728
177 CUAGCCCU G UGCGCUCA 3445 TGAGCGCA GGCTAGCTACAACGA AGGGCTAG 4731 179 AGCCCUGU G CGCUCAAC 3446 GTTGAGCG GGCTAGCTACAACGA ACAGGGCT 4732 181 CCCUGUGC G CUCAACUG 3447 CAGTTGAG GGCTAGCTACAACGA GCACAGGG 4733 186 UGCGCUCA A CUGUCCUG 3448 CAGGACAG GGCTAGCTACAACGA TGAGCGCA 4734 189 GCUCAACU G UCCUGCGC 3449 GCGCAGGA GGCTAGCTACAACGA AGTTGAGC 4735 194 ACUGUCCU G CGCUGCGG 3450 CCCGCAGCG GGCTAGCTACAACGA AGGACAGT 4736 196 UGUCCUGC G CUGCGGG 3451 CCCCGCAG GGCTAGCTACAACGA GCACAGA 4737 199 CCUGCGCU G CGGGGUGC 3452 GCACCCCG GGCTAGCTACAACGA AGCGCAGG 4738	164	GOGCCOGG G CUCCCUAG	3443	CTAGGGAG GGCTAGCTACAACGA CCGGGCGC	4729
179 AGCCCUGU G CGCUCAAC 3446 GTTGAGCG GGCTAGCTACAACGA ACAGGGCT 4732 181 CCCUGUGC G CUCAACUG 3447 CAGTTGAG GGCTAGCTACAACGA GCACAGGG 4733 186 UGCGCUCA A CUGUCCUG 3448 CAGGACAG GGCTAGCTACAACGA TGAGCGCA 4734 189 GCUCAACU G UCCUGCGC 3449 GCGCAGGA GGCTAGCTACAACGA AGTTGAGC 4735 194 ACUGUCCU G CGCUGCGG 3450 CCGCAGCG GGCTAGCTACAACGA AGGACAGT 4736 196 UGUCCUGC G CUGCGGG 3451 CCCCGCAG GGCTAGCTACAACGA GCAGGACA 4737 199 CCUGCGCU G CGGGGUGC 3452 GCACCCCG GGCTAGCTACAACGA AGCGCAGG 4738	172	GCUCCCUA G CCCUGUGC	3444	GCACAGGG GGCTAGCTACAACGA TAGGGAGC	4730
181 CCCUGUGC G CUCAACUG 3447 CAGTTGAG GGCTAGCTACAACGA GCACAGGG 4733 186 UGCGCUCA A CUGUCCUG 3448 CAGGACAG GGCTAGCTACAACGA TGAGCGCA 4734 189 GCUCAACU G UCCUGCGC 3449 GCGCAGGA GGCTAGCTACAACGA AGTTGAGC 4735 194 ACUGUCCU G CGCUGCGG 3450 CCCGCAGCG GGCTAGCTACAACGA AGGACAGT 4736 196 UGUCCUGC G CUGCGGG 3451 CCCCGCAG GGCTAGCTACAACGA GCAGGACA 4737 199 CCUGCGCU G CGGGGUGC 3452 GCACCCCG GGCTAGCTACAACGA AGCGCAGG 4738	177	CUAGCCCU G UGCGCUCA	3445	TGAGCGCA GGCTAGCTACAACGA AGGGCTAG	4731
186 UGCGCUCA A CUGUCCUG 3448 CAGGACAG GGCTAGCTACAACGA TGAGCGCA 4734 189 GCUCAACU G UCCUGCGC 3449 GCGCAGGA GGCTAGCTACAACGA AGTTGAGC 4735 194 ACUGUCCU G CGCUGCGG 3450 CCGCAGCG GGCTAGCTACAACGA AGGACAGT 4736 196 UGUCCUGC G CUGCGGGG 3451 CCCCGCAG GGCTAGCTACAACGA GCAGGACA 4737 199 CCUGCGCU G CGGGGUGC 3452 GCACCCCG GGCTAGCTACAACGA AGCGCAGG 4738	179	AGCCCUGU G CGCUCAAC	3446	GTTGAGCG GGCTAGCTACAACGA ACAGGGCT	4732
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206 BUGGGGGG CCGGGGAG 3454 ACTGGGG GCTAGCTACAACGA ACCCGGCA 4741				
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423 AAAGACAU A CUUACAAU 3501 ATTGTAAG GGCTAGCTACAACGA ATGTCTTT 4787 427 ACAUACUU A CAAUUAAG 3502 CTTAATTG GGCTAGCTACAACGA AAGTATGT 4788 430 UACUUACA A UUAAGGCU 3503 AGCCTTAA GGCTAGCTACAACGA TGTAAGTA 4789 436 CAAUUAAG G CUAAUACA 3504 TGTATTAG GGCTAGCTACAACGA CTTAATTG 4790 440 UAAGGCUA A UACAACUC 3505 GAGTTGTA GGCTAGCTACAACGA TAGCCTTA 4791				
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430 UACUUACA A UUAAGGCU 3503 AGCCTTAA GGCTAGCTACAACGA TGTAAGTA 4789 436 CAAUUAAG G CUAAUACA 3504 TGTATTAG GGCTAGCTACAACGA CTTAATTG 4790 440 UAAGGCUA A UACAACUC 3505 GAGTTGTA GGCTAGCTACAACGA TAGCCTTA 4791				ATTGTAAG GGCTAGCTACAACGA ATGTCTTT 4787
436 CAAUUAAG G CUAAUACA 3504 . TGTATTAG GGCTAGCTACAACGA CTTAATTG 4790 440 UAAGGCUA A UACAACUC 3505 GAGTTGTA GGCTAGCTACAACGA TAGCCTTA 4791				CTTAATTG GGCTAGCTACAACGA AAGTATGT 4788
440 UAAGGCUA A UACAACUC 3505 GAGTTGTA GGCTACAACGA TAGCCTTA 4791				AGCCTTAA GGCTAGCTACAACGA TGTAAGTA 4789
AAD DOORTEDIT D. CORPORATE DESCRIPTION OF THE PROPERTY OF THE	_		3504 .	TGTATTAG GGCTAGCTACAACGA CTTAATTG 4790
442 AGGCUAAU A CAACUCUU 3506 AAGAGTTG GGCTAGCTACAACGA ATTAGCCT 4792	440	UAAGGCUA A UACAACUC	3505	GAGTTGTA GGCTAGCTACAACGA TAGCCTTA 4791
	442	AGGCUAAU A CAACUCUU	3506	AAGAGTTG GGCTAGCTACAACGA ATTAGCCT 4792

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445	CUAAUACA A CUCUUCAA	3507	TTGAAGAG GGCTAGCTACAACGA TGTATTAG	4793
454	CUCUUCAA A UUACUUGC	3508	GCAAGTAA GGCTAGCTACAACGA TTGAAGAG	4794
457	UUCAAAUU A CUUGCAGG	3509	CCTGCAAG GGCTAGCTACAACGA AATTTGAA	4795
461	AAUUACUU G CAGGGGAC	3510	GTCCCCTG GGCTAGCTACAACGA AAGTAATT	4796
468	UGCAGGGG A CAGAGGGA	3511	TCCCTCTG GGCTAGCTACAACGA CCCCTGCA	4797
476	ACAGAGGG A CUUGGACU	3512	AGTCCAAG GGCTAGCTACAACGA CCCTCTGT	4798
482	GGACUUGG A CUGGCUUU	3513	AAAGCCAG GGCTAGCTACAACGA CCAAGTCC	4799
486	UUGGACUG G CUUUGGCC	3514	GGCCAAAG GGCTAGCTACAACGA CAGTCCAA	4800
492	UGGCUUUG G CCCAAUAA	3515	TTATTGGG GGCTAGCTACAACGA CAAAGCCA	4801
497	UUGGCCCA A UAAUCAGA	3516	TCTGATTA GGCTAGCTACAACGA TGGGCCAA	4802
500	GCCCAAUA A UCAGAGUG	3517	CACTCTGA GGCTAGCTACAACGA TATTGGGC	4803
506	UAAUCAGA G UGGCAGUG	3518	CACTGCCA GGCTAGCTACAACGA TCTGATTA	4804
509	UCAGAGUG G CAGUGAGC	3519	GCTCACTG GGCTAGCTACAACGA CACTCTGA	4805
512	GAGUGGCA G UGAGCAAA	3520	TTTGCTCA GGCTAGCTACAACGA TGCCACTC	4806
516	GGCAGUGA G CAAAGGGU	3521	ACCCTTTG GGCTAGCTACAACGA TCACTGCC	
523	AGCAAAGG G UGGAGGUG	3522		4807
529	GGGUGGAG G UGACUGAG	3523	CACCTCCA GGCTAGCTACAACGA CCTTTGCT	4808
532			CTCAGTCA GGCTAGCTACAACGA CTCCACCC	4809
	UGGAGGUG A CUGAGUGC	3524	GCACTCAG GGCTAGCTACAACGA CACCTCCA	4810
537	GUGACUGA G UGCAGCGA	3525	TCGCTGCA GGCTAGCTACAACGA TCAGTCAC	4811
539	GACUGAGU G CAGCGAUG	3526	CATCGCTG GGCTAGCTACAACGA ACTCAGTC	4812
542	UGAGUGCA G CGAUGGCC	3527	GGCCATCG GGCTAGCTACAACGA TGCACTCA	4813
545	GUGCAGCG A UGGCCUCU	3528	AGAGGCCA GGCTAGCTACAACGA CGCTGCAC	4814
548	CAGCGAUG G CCUCUUCU	3529	AGAAGAGG GGCTAGCTACAACGA CATCGCTG	4815
557	CCUCUUCU G UAAGACAC	3530	GTGTCTTA GGCTAGCTACAACGA AGAAGAGG	4816
562	UCUGUAAG A CACUCACA	3531	TGTGAGTG GGCTAGCTACAACGA CTTACAGA	4817
564	UGUAAGAC A CUCACAAU	3532	ATTGTGAG GGCTAGCTACAACGA GTCTTACA	4818
568	AGACACUC A CAAUUCCA	3533	TGGAATTG GGCTAGCTACAACGA GAGTGTCT	4819
571	CACUCACA A UUCCAAAA	3534	TTTTGGAA GGCTAGCTACAACGA TGTGAGTG	4820
580	UUCCAAAA G UGAUCGGA	3535	TCCGATCA GGCTAGCTACAACGA TTTTGGAA	4821
583	CAAAAGUG A UCGGAAAU	3536	ATTTCCGA GGCTAGCTACAACGA CACTTTTG	4822
590	GAUCGGAA A UGACACUG	3537	CAGTGTCA GGCTAGCTACAACGA TTCCGATC	4823
593	CGGAAAUG A CACUGGAG	3538	CTCCAGTG GGCTAGCTACAACGA CATTTCCG	4824
595	GAAAUGAC A CUGGAGCC	3539	GGCTCCAG GGCTAGCTACAACGA GTCATTTC	4825
601	ACACUGGA G CCUACAAG	3540	CTTGTAGG GGCTAGCTACAACGA TCCAGTGT	4826
605	UGGAGCCU A CAAGUGCU	3541	AGCACTTG GGCTAGCTACAACGA AGGCTCCA	4827
609	GCCUACAA G UGCUUCUA	3542	TAGAAGCA GGCTAGCTACAACGA TTGTAGGC	4828
611	CUACAAGU G CUUCUACC	3543	GGTAGAAG GGCTAGCTACAACGA ACTTGTAG	4829
617	GUGCUUCU A CCGGGAAA	3544	TTTCCCGG GGCTAGCTACAACGA AGAAGCAC	4830
625	ACCGGGAA A CUGACUUG	3545	CAAGTCAG GGCTAGCTACAACGA TTCCCGGT	4831
629	GGAAACUG A CUUGGCCU	3546	AGGCCAAG GGCTAGCTACAACGA CAGTTTCC	4832
634	CUGACUUG G CCUCGGUC	3547	GACCGAGG GGCTAGCTACAACGA CAAGTCAG	4833
640	UGGCCUCG G UCAUUUAU	3548	ATAAATGA GGCTAGCTACAACGA CGAGGCCA	4834
643	CCUCGGUC A UUUAUGUC	3549	GACATAAA GGCTAGCTACAACGA GACCGAGG	4835
647	GGUCAUUU A UGUCUAUG	3550	CATAGACA GGCTAGCTACAACGA AAATGACC	4836
649	UCAUUUAU G UCUAUGUU	3551	AACATAGA GGCTAGCTACAACGA ATAAATGA	4837
653	UUAUGUCU A UGUUCAAG	3552	CTTGAACA GGCTAGCTACAACGA AGACATAA	4838
655	AUGUCUAU G UUCAAGAU	3553	ATCTTGAA GGCTAGCTACAACGA ATAGACAT	4839
662	UGUUCAAG A UUACAGAU	3554	ATCTGTAA GGCTAGCTACAACGA CTTGAACA	4840
665	UCAAGAUU A CAGAUCUC		GAGATCTG GGCTAGCTACAACGA AATCTTGA	4841
		3556	AATGGAGA GGCTAGCTACAACGA CTGTAATC	4842
	AGAUCUCC A UUUAUUGC	3557	GCAATAAA GGCTAGCTACAACGA GGAGATCT	4843
	CUCCAUUU A UUGCUUCU		AGAAGCAA GGCTAGCTACAACGA AAATGGAG	4844
_	CAUUUAUU G CUUCUGUU	3559	AACAGAAG GGCTAGCTACAACGA AATAAATG	
		2222		4845

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688	UUGCUUCU G UUAGUGAC	3560	GTCACTAA	GGCTAGCTACAACGA	AGAAGCAA	4846
692	UUCUGUUA G UGACCAAC	3561	GTTGGTCA	GGCTAGCTACAACGA	TAACAGAA	4847
695	UGUUAGUG A CCAACAUG	3562	CATGTTGG	GGCTAGCTACAACGA	CACTAACA	4848
699	AGUGACCA A CAUGGAGU	3563	ACTCCATG	GGCTAGCTACAACGA	TGGTCACT	4849
701	UGACCAAC A UGGAGUCG	3564	CGACTCCA	GGCTAGCTACAACGA	GTTGGTCA	4850
706	AACAUGGA G UCGUGUAC	3565	GTACACGA	GGCTAGCTACAACGA	TCCATGTT	4851
709	AUGGAGUC G UGUACAUU	3566	AATGTACA	GGCTAGCTACAACGA	GACTCCAT	4852
711	GGAGUCGU G UACAUUAC	3567	GTAATGTA	GGCTAGCTACAACGA	ACGACTCC	4853
713	AGUCGUGU A CAUUACUG	3568	CAGTAATG	GGCTAGCTACAACGA	ACACGACT	4854
715	UCGUGUAC A UUACUGAG	3569	CTCAGTAA	GGCTAGCTACAACGA	GTACACGA	4855
718	UGUACAUU A CUGAGAAC	3570	GTTCTCAG	GGCTAGCTACAACGA	AATGTACA	4856
725	UACUGAGA A CAAAAACA	3571	TGTTTTTG	GGCTAGCTACAACGA	TCTCAGTA	4857
731	GAACAAAA A CAAAACUG	3572	CAGITITG (GGCTAGCTACAACGA	TTTTGTTC	4858
736	AAAACAAA A CUGUGGUG	3573	CACCACAG	GGCTAGCTACAACGA	TTTGTTTT	4859
739	ACAAAACU G UGGUGAUU	3574	AATCACCA (GGCTAGCTACAACGA	AGTTTTGT	4860
742	AAACUGUG G UGAUUCCA	3575	TGGAATCA (GGCTAGCTACAACGA	CACAGTTT	4861
745	CUGUGGUG A UUCCAUGU	3576		GGCTAGCTACAACGA	·····	4862
750	GUGAUUCC A UGUCUCGG			GGCTAGCTACAACGA		4863
752	GAUUCCAU G UCUCGGGU	3578		GGCTAGCTACAACGA		4864
759	UGUCUCGG G UCCAUUUC	3579		GGCTAGCTACAACGA		4865
763	UCGGGUCC A UUUCAAAU	3580		GGCTAGCTACAACGA		4866
770	CAUUUCAA A UCUCAACG			GGCTAGCTACAACGA		4867
776	AAAUCUCA A CGUGUCAC			GGCTAGCTACAACGA		4868
778	AUCUCAAC G UGUCACUU	3583		GGCTAGCTACAACGA		4869
780	CUCAACGU G UCACUUUG	3584		GGCTAGCTACAACGA		4870
783	AACGUGUC A CUUUGUGC	3585		GGCTAGCTACAACGA		4871
788	GUCACUUU G UGCAAGAU			GGCTAGCTACAACGA		4872
790	CACUUUGU G CAAGAUAC			GGCTAGCTACAACGA		4873
795	UGUGCAAG A UACCCAGA	3588		GGCTAGCTACAACGA		4874
797	UGCAAGAU A CCCAGAAA	3589	TTTCTGGG (GGCTAGCTACAACGA	ATCTTGCA	4875
810	GAAAAGAG A UUUGUUCC	3590	GGAACAAA (GGCTAGCTACAACGA	CTCTTTTC	4876
814	AGAGAUUU G UUCCUGAU	3591		GGCTAGCTACAACGA		4877
821	UGUUCCUG A UGGUAACA	3592		GGCTAGCTACAACGA		4878
824	UCCUGAUG G UAACAGAA	3593		GGCTAGCTACAACGA		4879
827	UGAUGGUA A CAGAAUUU	3594		GGCTAGCTACAACGA		4880
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	AGGGCUUU A CUAUUCCC			GGCTAGCTACAACGA		4885
	GCUUUACU A UUCCCAGC			GGCTAGCTACAACGA		4886
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	CAUGAUCA G CUAUGCUG			GGCTAGCTACAACGA		4891
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886	UCAGCUAU G CUGGCAUG			GGCTAGCTACAACGA		4893
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	AUGCUGGC A UGGUCUUC			GGCTAGCTACAACGA		4895
895	CUGGCAUG G UCUUCUGU	3610		GGCTAGCTACAACGA GGCTAGCTACAACGA		4896
902	GGUCUUCU G UGAAGCAA	3611		GGCTAGCTACAACGA		
907	UCUGUGAA G CAAAAAUU			GGCTAGCTACAACGA		4897
٠, در	CCCCCCARA G CAMMANUU	3612	warring (COCTUME THE HACGA	**CUCUTA	4898

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933	AGUUACCA G UCUAUUAU	3618	ATAATAGA GGCTAGCTACAACGA TGGTAACT 4904
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946	UUAUGUAC A UAGUUGUC	3623	GACAACTA GGCTAGCTACAACGA GTACATAA 4909
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	AAUGUGAA G CGGUCAAC	3837	GTTGACCG GGCTAGCTACAACGA TTCACATT	5122
	GUGAAGCG G UCAACAAA	3838		5123
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		3839	CGACTTTG GGCTAGCTACAACGA TGACCGCT	5125
\vdash	UCAACAAA G UCGGGAGA	3840	TCTCCCGA GGCTAGCTACAACGA TTTGTTGA	5126
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1978	AACCUGAC A UGCAGCCC	3852	GGGCTGCA GGCTAGCTACAACGA GTCAGGTT	5138
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├─	UCUUCUAG G CAUAUCCU			GGCTAGCTACAACGA		5692
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5279 CUGAUGUG A UAUGUCUG 455		5844
5281 GAUGUGAU A UGUCUGAG 455		5845
5283 UGUGAUAU G UCUGAGAC 456		5846
5290 UGUCUGAG A CUGAAUGC 456		5847
5295 GAGACUGA A UGCGGGAG 456:	200000000000000000000000000000000000000	5848
		5849
5297 GACUGAAU G CGGGAGGU 456	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
5297 GACUGAAU G CGGGAGGU 456 5304 UGCGGGAG G UUCAAUGU 456	ACATTGAA GGCTAGCTACAACGA CTCCCGCA	5850
5297 GACUGAAU G CGGGAGGU 456	ACATTGAA GGCTAGCTACAACGA CTCCCGCA GCTTCACA GGCTAGCTACAACGA TGAACCTC	

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5316	AAUGUGAA G	CUGUGUGU	4567	ACACACAG	GGCTAGCTACAACGA	TTCACATT	5853
5319	GUGAAGCU G	UGUGUGGU	4568	ACCACACA	GGCTAGCTACAACGA	AGCTTCAC	5854
5321	GAAGCUGU G	UGUGGUGU	4569	ACACCACA	GGCTAGCTACAACGA	ACAGCTTC	5855
5323	AGCUGUGU G	UGGUGUCA	4570	TGACACCA	GGCTAGCTACAACGA	ACACAGCT	5856
5326	nananana a	UGUCAAAG	4571	CTTTGACA	GGCTAGCTACAACGA	CACACACA	5857
5328	UGUGUGGU G	UCAAAGUU	4572	AACTTTGA	GGCTAGCTACAACGA	ACCACACA	5858
5334	GUGUCAAA G	UUUCAGGA	4573	TCCTGAAA	GGCTAGCTACAACGA	TTTGACAC	5859
5346	CAGGAAGG A	UUUUACCC	4574	GGGTAAAA	GGCTAGCTACAACGA	CCTTCCTG	5860
5351	AGGAUUUU A	CCCUUUUG	4575	CAAAAGGG	GGCTAGCTACAACGA	AAAATCCT	5861
5359	ACCCUUUU G	mcmccc	4576	GGGAAGAA	GGCTAGCTACAACGA	AAAAGGGT	5862
5371	OUCCCCCO G	UCCCCAAC	4577	GTTGGGGA	GGCTAGCTACAACGA	AGGGGGAA	5863
5378	UGUCCCCA A	CCCACUCU	4578	AGAGTGGG	GGCTAGCTACAACGA	TGGGGACA	5864
5382	CCCAACCC A	CUCUCACC	4579	GGTGAGAG	GGCTAGCTACAACGA	GGGTTGGG	5865
5388	CCACUCUC A	CCCCGCAA	4580	TTGCGGGG	GGCTAGCTACAACGA	GAGAGTGG	5866
5393	CUCACCCC G	CAACCCAU	4581	ATGGGTTG	GGCTAGCTACAACGA	GGGGTGAG	5867
5396	ACCCCGCA A	CCCAUCAG	4582	CTGATGGG	GGCTAGCTACAACGA	TGCGGGGT	5868
5400	CGCAACCC A	UCAGUAUU	4583		GGCTAGCTACAACGA		5869
5404	ACCCAUCA G	UAUUUUAG	4584		GGCTAGCTACAACGA		5870
5406	CCAUCAGU A	UUUUAGUU	4585		GGCTAGCTACAACGA		5871
5412	GUAUUUUA G	UUAUUUGG	4586		GGCTAGCTACAACGA		5872
5415	UUUUAGUU A	UUUGGCCU	4587		GGCTAGCTACAACGA		5873
5420	GUUAUUUG G	CCUCUACU	4588		GGCTAGCTACAACGA		5874
	DGGCCUCU A		4589		GGCTAGCTACAACGA		5875
<u> </u>	CUACUCCA G		4590		GGCTAGCTACAACGA		5876
	UCCAGUAA A		4591		GGCTAGCTACAACGA		5877
	UAAACCUG A		4592		GGCTAGCTACAACGA		5878
	CUGAUUGG G		4593		GGCTAGCTACAACGA		5879
<u> </u>	nnceennn e		4594		GGCTAGCTACAACGA		5880
<u> </u>	GUUUGUUC A		4595		GGCTAGCTACAACGA		5881
\vdash	CUCUCUGA A		4596		GGCTAGCTACAACGA		5882
	UCUGAAUG A		4597		GGCTAGCTACAACGA		5883
	GAAUGAUU A		4598		GGCTAGCTACAACGA		5884
\vdash	GAUUAUUA G		4599		GGCTAGCTACAACGA		5885
\vdash	UUAGCCAG A		4600		GGCTAGCTACAACGA		5886
			4601		GGCTAGCTACAACGA		5887
	UCAAAAUU A		4602		GGCTAGCTACAACGA		5888
-	A UUUUUAUUA		4603		GGCTAGCTACAACGA		5889
	AUUUUAUA G		4604		GGCTAGCTACAACGA		5890
			4605		GGCTAGCTACAACGA		5891
	CCCAAAUU A		4606		GGCTAGCTACAACGA		
	AAAUUAUA A		4607		GGCTAGCTACAACGA		5892 5893
	AUUAUAAC A		4608		GGCTAGCTACAACGA		5894
-	UAACAUCU A		4609		GGCTAGCTACAACGA		5895
	CAUCUAUU G				GGCTAGCTACAACGA		
	UCUAUUGU A				GGCTAGCTACAACGA		5896
-	AUUGUAUU A		4612		GGCTAGCTACAACGA		5897
	UUAUUUAG A		4613		GGCTAGCTACAACGA		5898
	GACUUUUA A		4614		GGCTAGCTACAACGA		5899
	CUUUUAAC A		4615		GGCTAGCTACAACGA		5900
	UUUAACAU A		4616		GGCTAGCTACAACGA		5901
-	CAUAUAGA G		4617		GGCTAGCTACAACGA		5902
	AUAGAGCU A		4618		GGCTAGCTACAACGA		5903
-	CUAUUUCU A						5904
3334	CUADOUCU A	COGNUOU	4619	MAMATCAG	GGCTAGCTACAACGA	AGAAATAG	5905

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55556 UJUCUACUU A DUUUUUGC 6420 GGCAAAAA GGCTAGCTACAACAA AAAATCA 5907 5570 UJUCCCUU G UUUUUUU 4621 AACAAGG GGCTAGCTACAACAA AAAATCA 5907 5570 UJUCCCUU G UUUUUUU 4622 GGACAGA GGCTAGCTACAACAA AAAATCA 5908 5575 CUUUUUUU G UCUUUUU 4623 AAAAAGG GGCTAGCTACAACAA AGAACAAG 5909 5597 AAAAGAA A UUUUUUUU 4625 AAAAAGA GGCTAGCTACAACAA TTTCTT 5911 5599 AAGAAAA GUUUUUUU 4624 AAAAACAA GGCTAGCTACAACAA TTTCTT 5911 5599 AAGAAAA CUUUUUUU 4625 AAAAAAG GGCTAGCTACAACAA TTTCTT 5911 5601 GAAAAUU G UUUUUUU 4626 AAAAAAA GGCTAGCTACAACAA ATAAAACA 5913 5613 UUUUUUUU G UUUUGGAC 4627 GTACCAAA GGCTAGCTACAACAA AAAAACA 5913 5615 UUUUUUU G UUUUGGAC 4627 GTACCAAA GGCTAGCTACAACAA AAAAACA 5913 5615 UUUUUUU G UUUGGAC 4627 GTACCAAA GGCTAGCTACAACAA AAAAACA 5913 5618 UUUGGUAC A UAAGUGGA 4629 CATAATGG GGCTAGCTACAACAA ACAACAA 5914 5618 UUUGGUAC A UAAGUGGA 4630 TCACACAG GCTAGCTACAACAA ACAACAA 5916 5621 GUACCAUA G UGUAAAUU 4631 ATTTCCAC GGCTAGCTACAACAA ACTATGGT 5917 5622 ACUAGGA G UUUUUUU 4624 AG91 ATTTCCAC GGCTAGCTACAACAA TTTCACAC 5916 5630 UUUGAAAUU G UUAAAUUG 4631 ATTTCCAC GGCTAGCTACAACAA TTTCACAC 5910 5630 UUUGAAAUU G UUUGAAAUU 4638 ATTTCACA GGCTAGCTACAACAA TTTCACAC 5912 5640 CAUGUGGA A CAAIGAAU 4638 ATTTCACA GGCTAGCTACAACAA TTTCACAC 5912 5641 UUUGAGAA A UAAUAUU 4636 TATTAGTA GGCTAGCTACAACAA ATTTCACAC 5910 5642 UUUGAGAA A UAAGUAU 4638 ATTTCACAC GGCTAGCTACAACAA A							
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5575 CUUGUUCU G UCCUUUUU 4623 AAAAAGGA GGCTAGCTACAACGA AGAACAA 5909	5564	UGADUUUU G CCCUUGUU	4621	AACAAGGG (GGCTAGCTACAACGA	AAAAATCA	5907
S597 AAAGAAA A UGUGUUUU 4624 AAAACACA GGCTAGCTACAACGA TTTCTTTT 5910	5570	UUGCCCUU G UUCUGUCC	4622	GGACAGAA (GGCTAGCTACAACGA	AAGGGCAA	5908
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5608 UGUUUUUU G UUUGGUAC 4627 GTACCAAA GGCTAGCTACAACGA AAAAAAAA 5913 5613 UUUGUUUG G VACCADAG 4628 CTATGGTA GGCTAGCTACAACGA CAAACAAA 5914 5613 UUUGUUGG A CACADAG 4628 CACTATGG GGCTAGCTACAACGA ACCAAACA 5915 5618 UUUGUUCC A UAGUGUGA 4630 TCACACTA GGCTAGCTACAACGA ACCAACCA 5916 5621 GUACACUA G UGUARABU 4631 ATTCCACA GGCTAGCTACAACGA ACTATGGT 5917 5623 ACCALAGU G UGUARABU 4631 ATTCCCAG GGCTAGCTACAACGA ACTATGGT 5919 5630 BUGUGAAD A UGUGGGAA 4633 TCCCAGCA GGCTAGCTACAACGA ACTATGGT 5919 5637 UGUGGAAC A CAAUGACU 4635 AGTCATTGGTACAACGA ACTATCACAC 5920 5640 UGUGGAACA A UAGUALU 4636 TCTTATTG GGCTAGCTACAACGA CATTGTT 5923 5641 GAAUGACU A UAAGACAU 4638 ATTGCTAG GGCTAGCTACAACGA CATTGTT 5923 5652 JAAGACAU A UACUAUAGA 4639 ATAGCATG GGCTAGCTACAACGA CATTCTTAT 5925 5653 JA	5599	AAGAAAAU G UGUUUUUU	4625	AAAAAACA (GGCTAGCTACAACGA	ATTTTCTT	5911
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5615 UGUUUGGU A CCAUAGUG 4629 CACTATGG GCTAGCTACAACGA ACCAACA 5515 5621 GUUGGUACC A UAGUUUGA 4630 TACACATA GGCTAGCTACAACGA GGTACCAA 5916 5621 GUACCAUA G UGUGAAAU 4631 ATTTCACA GGCTAGCTACAACGA ATTGGTAC 5917 5623 ACCAUAGU G UGAAAUGC 4632 GCATTTCA GGCTAGCTACAACGA ACTATGGT 5518 5628 AGUGUGAA A UGCUGGGA 4633 TCCCAGCA GGCTAGCTACAACGA ACTATGGT 5518 5630 UGUGAAAU G CUGGGGAAC 4634 GTCCCAG GGCTAGCTACAACGA ATTTCACA 5920 5637 UGCUGGGA A CAAUGACU 4635 AGTCATG GGCTAGCTACAACGA ATTTCACA 5920 5637 UGCUGGGA A CAAUGACU 4635 AGTCATG GGCTAGCTACAACGA TCCCACCA 5921 5640 UGGGACA A UGACUAUA 4636 TATAGTCA GGCTAGCTACAACGA TCCCACCA 5921 5641 GAACAAUG A CUAUAAGA 4637 TCTTATAG GGCTAGCTACAACGA TGTTCCCA 5922 5642 GAACAAUG A CUAUAAGA 4637 TCTTATAG GGCTAGCTACAACGA ATTCCCA 5921 5653 MACAAUG A CUAUAAGA 4638 ATGCTTA GGCTAGCTACAACGA ATTCTCCA 5922 5654 CAAUGACU A UAAGACAU 4638 ATGCTTA GGCTAGCTACAACGA ATCCATTG 5924 5655 MAGACAU A UAAGACAU 4639 ATAGCAT GGCTAGCTACAACGA ATCCATTG 5925 5655 MAGACAU A UAGAGCAU 4640 CCATAGCA GGCTAGCTACAACGA ATCCATTA 5926 5656 MAGACUSCU A UGGCCAAU 4641 ACTGCCA GGCTAGCTACAACGA ATCCATTA 5926 5656 MAGCAUSCU A UGGCCAAU 4642 ATGGCCA GGCTAGCTACAACGA ACCATTCTA 5929 5661 AUCCUAUG G CACAUAUA 4644 ATTATTG GGCTAGCTACAACGA ACCATTCC 5928 5662 MAGCACU A UAUAUUUA 4644 ATTATTG GGCTAGCTACAACGA ACCATTGC 5928 5663 MAGCACU A UAUAUUUA 4645 TAAATATA GGCTAGCTACAACGA ATCGCATT 5931 5665 MAGGCAC A UAUAUUUA 4646 ATTATATG GGCTAGCTACAACGA ATCGCATT 5931 5666 MAGCACUA A UAUAUUUA 4646 ATTATATG GGCTAGCTACAACGA ATCGCATT 5931 5667 UGGCACAU A UAUAUUAU 4647 ACTATAAA GGCTAGCTACAACGA ATCGCATT 5931 5668 CUGUUUAU A UAGUCUU 4648 ATTATATG GGCTAGCTACAACGA ATCGCATT 5931 5669 AUAUAGUU A UAUAUAUA 4649 TAAACAGA GGCTAGCTACAACGA ATATATCC 5938 5670 MAUAUUU A UAGUCUU 4649 ACTATATA GGCTAGCTACAACGA ATATATCC 5932 5671 MAUUUAUA G UCUGUUUA 4649 TAAACAGA GGCTAGCTACAACGA ATATATCA 5935 5688 GACAUAUU A UAUAUAUA 4650 TAATATA GGCTAGCTACAACGA ATATATAT 5934 5672 MAUUUAUA G UCUGUUUA 4669 TAATATA GGCTAGCTACAACGA ATATATAT 5936 5689 AAACAAAU G UAUAUAUA 4650 TACATATA GGCTAGCTACAACGA ATATATAC 5	5608	UGUUUUUU G UUUGGUAC	4627	GTACCAAA (GGCTAGCTACAACGA	AAAAAACA	5913
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5734 AACUUUGU A CUAUUCAC 4666 GTGAATAG GGCTAGCTACAACGA ACAAAGTT 5952 5737 UUUGUACU A UUCACAUU 4667 AATGTGAA GGCTAGCTACAACGA AGTACAAA 5953 5741 UACUAUUC A CAUUUUGU 4668 ACAAAATG GGCTAGCTACAACGA GAATAGTA 5954 5743 CUAUUCAC A UUUUGUAU 4669 ATACAAAA GGCTAGCTACAACGA GTGAATAG 5955 5748 CACAUUUU G UAUCAGUA 4670 TACTGATA GGCTAGCTACAACGA AAAATGTG 5956 5750 CAUUUUGU A UCAGUAUU 4671 AATACTGA GGCTAGCTACAACGA ACAAAATG 5957							5950
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5754 UUGUADCA G UAUUAUGU 4672 ACATAATA GGCTAGCTACAACGA TGATACAA 5958	<u></u>	 	4671				5957
	5754	UUGUAUCA G UAUUAUGU	4672	ACATAATA G	GCTAGCTACAACGA	TGATACAA	5958

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5756	GUAUCAGU	A	UUAUGUAG	4673	CTACATAA GGCTAGCTACAACGA ACTGATAC 5	959
5759	UCAGUAUU	A	UGUAGCAU	4674	ATGCTACA GGCTAGCTACAACGA AATACTGA 5	960
5761	AGUAUUAU	G	UAGCAUAA	4675	TTATGCTA GGCTAGCTACAACGA ATAATACT 5	961
5764	AUUAUGUA	G	CAUAACAA	4676	TTGTTATG GGCTAGCTACAACGA TACATAAT 5	962
5766	UAUGUAGC	A	UAACAAAG	4677	CTTTGTTA GGCTAGCTACAACGA GCTACATA 59	963
5769	GUAGCAUA	A	CAAAGGUC	4678	GACCTTTG GGCTAGCTACAACGA TATGCTAC 59	964
5775	UAACAAAG	G	UCAUAAUG	4679	CATTATGA GGCTAGCTACAACGA CTTTGTTA 59	965
5778	CAAAGGUC	A	UAAUGCUU	4680	AAGCATTA GGCTAGCTACAACGA GACCTTTG 59	966
5781	AGGUCAUA	A	UGCUUUCA	4681	TGAAAGCA GGCTAGCTACAACGA TATGACCT 59	967
5783	GUCAUAAU	G	CUUUCAGC	4682	GCTGAAAG GGCTAGCTACAACGA ATTATGAC 59	968
5790	UGCUUUCA	G	CAAUUGAU	4683	ATCAATTG GGCTAGCTACAACGA TGAAAGCA 59	969
5793	UUUCAGCA	A	UUGAUGUC	4684	GACATCAA GGCTAGCTACAACGA TGCTGAAA 59	970
5797	AGCAAUUG	A	UGUCAUUU	4685	AAATGACA GGCTAGCTACAACGA CAATTGCT 5	971
5799	CAAUUGAU	G	UCAUUUUA	4686	TAAAATGA GGCTAGCTACAACGA ATCAATTG 59	972
5802	UUGAUGUC	A	UUUUAUUA	4687	TAATAAAA GGCTAGCTACAACGA GACATCAA 59	973
5807	GUCAUUUU	A	UUAAAGAA	4688	TTCTTTAA GGCTAGCTACAACGA AAAATGAC 59	974
5815	AUUAAAGA	A	CAUUGAAA	4689	TTTCAATG GGCTAGCTACAACGA TCTTTAAT 59	975
5817	UAAAGAAC	A	UUGAAAAA	4690	TTTTTCAA GGCTAGCTACAACGA GTTCTTTA 59	976

Input Sequence = AF035121. Cut Site = R/Y

Arm Length = 8. Core Sequence = GGCTAGCTACAACGA

AF035121 (Homo sapiens KDR/flk-1 protein mRNA, complete cds.; Acc# AF035121; 5830 bp)

CLAIMS

1. A compound having Formula II: (SEQ ID NO: 5978)

5'-usascs asau uc<u>U</u> GAu Gag geg aaa gee Gaa Aag aca aB-3'

- wherein each a is 2'-O-methyl adenosine nucleotide, each g is a 2'-O-methyl guanosine nucleotide, each c is a 2'-O-methyl cytidine nucleotide, each u is a 2'-O-methyl uridine nucleotide, each A is adenosine, each G is guanosine, each s individually represents a phosphorothioate internucleotide linkage, U is 2'-deoxy-2'-C-allyl uridine, and B is an inverted deoxyabasic moiety.
 - 2. A composition comprising the compound of claim 1 and a pharmaceutically acceptable carrier or diluent.
- A method of administering to a cell the compound of claim 1 comprising contacting said cell with the compound under conditions suitable for said administration.
 - 4. The method of claim 3, wherein said cell is a mammalian cell.
 - 5. The method of claim 3, wherein said cell is a human cell.
 - The method of claim 3, wherein said administration is in the presence of a delivery reagent.
- 20 7. The method of claim 6, wherein said delivery reagent is a lipid.
 - 8. The method of claim 7, wherein said lipid is a cationic lipid.
 - 9. The method of claim 7, wherein said lipid is a phospholipid.
 - 10. The method of claim 6, wherein said delivery reagent is a liposome.
- 11. A method of administering to a cell the compound of claim 1 in conjunction with one or more other drug comprising contacting said cell

with the compound and the other drug(s) under conditions suitable for said administration.

12. A method of inhibiting ocular angiogenesis in a subject comprising the step of contacting said subject with the compound of claim 1 under conditions suitable for said inhibition.

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- 13. The method of claim 12, wherein said angiogenesis is associated with diabetic retinopathy.
- 14. The method of claim 12, wherein said angiogenesis is associated with age related diabetic retinopathy.
- 10 15. A method of cleaving RNA comprising a sequence of KDR RNA comprising contacting the compound of claim 1 with said RNA under conditions suitable for the cleavage of said RNA.
 - 16. The method of claim 15, wherein said cleavage is carried out in the presence of a divalent cation.
- 15 17. The method of claim 16, wherein said divalent cation is Mg2+.
 - 18. A method of administering to a mammal the compound of claim 1 comprising contacting said mammal with the compound under conditions suitable for said administration.
 - 19. The method of claim 18, wherein said mammal is a human.
- 20 20. The method of claim 18 wherein said administration is in the presence of a delivery reagent.
 - 21. The method of claim 18, wherein said delivery reagent is a lipid.
 - 22. The method of claim 21, wherein said lipid is a cationic lipid.
 - 23. The method of claim 21, wherein said lipid is a phospholipid.
- 25 24. The method of claim 20, wherein said delivery reagent is a liposome.

- 25. A method for treating a subject having endometriosis, comprising contacting said subject with a nucleic acid molecule that modulates the expression of VEGF, VEGFR1, and/or VEGFR2, under conditions suitable for said treatment.
- 5 26. The method of claim 25, wherein said nucleic acid molecule is an enzymatic nucleic acid molecule.
 - 27. The method of claim 25, wherein said nucleic acid molecule is an antisense nucleic acid molecule.
- 28. The method of claim 25, wherein said nucleic acid molecule is a dsRNA nucleic acid molecule.
 - 29. The method of claim 25, wherein said nucleic acid molecule is a nucleic acid aptamer.
 - 30. The method of claim 25, wherein said nucleic acid molecule comprises a sequence having SEQ ID NO: 5977.
- 15 31. The method of claim 26, wherein said enzymatic nucleic acid molecule has an endonuclease activity to cleave RNA encoded by an VEGFR1 and/or VEGFR2 gene.
 - 32. The method of claim 26, wherein said enzymatic nucleic acid molecule is in a hammerhead configuration.
- 20 33. The method of claim 26, wherein said enzymatic nucleic acid molecule is in an Inozyme configuration.
 - 34. The method of claim 26, wherein said enzymatic nucleic acid molecule is in a Zinzyme configuration.
- The method of claim 26, wherein said enzymatic nucleic acid molecule is
 in a DNAzyme configuration.
 - 36. The method of claim 26, wherein said enzymatic nucleic acid molecule is in a G-cleaver configuration.
 - 37. The method of claim 26, wherein said enzymatic nucleic acid molecule is in an Amberzyme configuration.

- 38. The method of claim 26, wherein said enzymatic nucleic acid molecule is an allozyme.
- 39. The method of claim 25, wherein said nucleic acid molecule is chemically synthesized.
- 5 40. The method of claim 25, wherein said nucleic acid molecule comprises at least one 2'-sugar modification.
 - 41. The method of claim 25, wherein said nucleic acid molecule comprises at least one nucleic acid base modification.
- 42. The method of claim 25, wherein said nucleic acid molecule comprises at least one phosphate backbone modification.
 - 43. The method of claim 25, wherein said subject is a human.

15

- 44. A method for treating a subject having endometriosis, comprising administering to the subject a nucleic acid molecule that modulates the expression of VEGF, VEGFR1, and/or VEGFR2, under conditions suitable for said treatment.
 - 45. The method of claim 44 wherein said administration is in the presence of a delivery reagent.
 - 46. The method of claim 45, wherein said delivery reagent is a lipid.
 - 47. The method of claim 46, wherein said lipid is a cationic lipid.
- 20 48. The method of claim 46, wherein said lipid is a phospholipid.
 - 49. The method of claim 45, wherein said delivery reagent is a liposome.
 - 50. The method of claim 44, further comprising administering one or more other drug(s).
- The method of claim 50, wherein said other drug(s) are chosen from GnRH
 (gonadotropin releasing hormone) agonists, Lupron Depot (Leuprolide Acetate), Synarel (naferalin acetate), Zolodex (goserelin acetate), Suprefact (buserelin acetate), Danazol, and oral contraceptives.
 - 52. A compound having Formula I: (SEO ID NO: 5977)

5

5' gsasgsusugcUGAuGagg ccgaaa ggccGaaAgucugB 3'

wherein each a is 2'-O-methyl adenosine nucleotide, each g is a 2'-O-methyl guanosine nucleotide, each c is a 2'-O-methyl cytidine nucleotide, each u is a 2'-O-methyl uridine nucleotide, each A is adenosine, each G is guanosine, each s individually represents a phosphorothioate internucleotide linkage, \underline{U} is 2'-deoxy-2'-C-allyl uridine, and \underline{B} is an inverted deoxyabasic moiety.

- 53. A composition comprising a compound of claim 52 in a pharmaceutically acceptable carrier or diluent.
- 10 54. A method of administering to a cell the compound of claim 52 comprising contacting said cell with the compound under conditions suitable for said administration.
 - 55. The method of claim 54, wherein said cell is a mammalian cell.
 - 56. The method of claim 54, wherein said cell is a human cell.
- 15 57. The method of claim 54, wherein said administration is in the presence of a delivery reagent.
 - 58. The method of claim 57, wherein said delivery reagent is a lipid.
 - 59. The method of claim 58, wherein said lipid is a cationic lipid.
 - 60. The method of claim 58, wherein said lipid is a phospholipid.
- 20 61. The method of claim 57, wherein said delivery reagent is a liposome.
 - 62. A method of administering to a cell the compound of claim 52 in conjunction with a chemotherapeutic agent comprising contacting said cell with the compound and the chemotherapeutic agent under conditions suitable for said administration.
- 25 63. The method of claim 62, wherein said chemotherapeutic agent is 5-fluoro uridine.

- 64. The method of claim 62, wherein said chemotherapeutic agent is Leucovorin.
- 65. The method of claim 62, wherein said chemotherapeutic agent is chosen from Irinotecan, CAMPTOSAR®, CPT-11, Camptothecin-11, or Campto.
- 5 66. The method of claim 62, wherein said chemotherapeutic agent is Paclitaxel.
 - 67. The method of claim 62, wherein said chemotherapeutic agent is Carboplatin.
 - 68. A mammalian cell comprising the compound of claim 52...
- 69. The mammalian cell of claim 68, wherein said mammalian cell is a human cell.
 - 70. A method of inhibiting angiogenesis in a subject, comprising the step of contacting said subject with the compound of claim 52, under conditions suitable for said inhibition.
 - 71. The method of claim 70, wherein said angiogenesis is tumor angiogenesis.
- 15 72. A method of treatment of a subject having a condition associated with an increased level of VEGF receptor comprising contacting cells of said subject with the compound of claim 52, under conditions suitable for said treatment.
- 73. The method of claim 72 further comprising the use of one or more drug therapies under conditions suitable for said treatment.
 - 74. A method of cleaving RNA comprising a sequence of VEGFR1 (fit-1), comprising contacting the compound of claim 52 with said RNA under conditions suitable for the cleavage of said RNA.
- 75. The method of claim 74, wherein said cleavage is carried out in the presence of a divalent cation.
 - 76. The method of claim 75, wherein said divalent cation is Mg2+.

- 77. The method of claim 72, wherein said condition is cancer.
- 78. The method of claim 77, wherein said cancer is breast cancer.
- 79. The method of claim 77, wherein said cancer is lung cancer.
- 80. The method of claim 77, wherein said cancer is colorectal cancer.
- 5 81. The method of claim 77, wherein said cancer is renal cancer.
 - 82. The method of claim 77, wherein said cancer is melanoma.
 - 83. The method of claim 77, wherein said cancer is pancreatic cancer.
 - 84. The method of claim 79, wherein said lung cancer is non-small cell lung carcinoma.
- 10 85. The method of claim 81, wherein said renal cancer is renal cell carcinoma.
 - 86. The method of claim 73, wherein said other therapy is 5-fluoro uridine.
 - 87. The method of claim 73, wherein said other therapy is Leucovorin.
 - 88. The method of claim 73, wherein said other therapy is Irinotecan, CAMPTOSAR®, CPT-11, Camptothecin-11, or Campto.
- 15 89. The method of claim 73, wherein said other therapy is Paclitaxel.
 - 90. The method of claim 73, wherein said other therapy is Carboplatin.
 - 91. A method of administering to a mammal the compound of claim 52 comprising contacting said mammal with the compound under conditions suitable for said administration.
- 20 92. The method of claim 91, wherein said mammal is a human.
 - 93. The method of claim 91, wherein said administration is in the presence of a delivery reagent.
 - 94. The method of claim 93, wherein said delivery reagent is a lipid.

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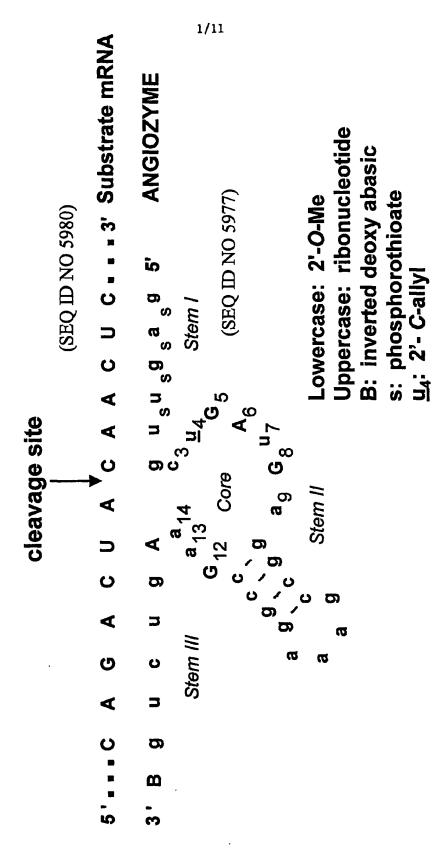
95.

- 96. The method of claim 94, wherein said lipid is a phospholipid.
- 97. The method of claim 93, wherein said delivery reagent is a liposome.

The method of claim 94, wherein said lipid is a cationic lipid.

- 98. A method of administering to a mammal the compound of claim 52 in 5 conjunction with a chemotherapeutic agent comprising contacting said mammal with the compound and the chemotherapeutic agent under conditions suitable for said administration.
 - 99. The method of claim 98, wherein said chemotherapeutic agent is 5-fluoro uridine.
- 10 100. The method of claim 98, wherein said chemotherapeutic agent is Leucovorin.
 - 101. The method of claim 98, wherein said chemotherapeutic agent is Irinotecan, CAMPTOSAR®, CPT-11, Camptothecin-11, or Campto.
 - 102. The method of claim 98, wherein said chemotherapeutic agent is Paclitaxel.
- 15 103. The method of claim 98, wherein said chemotherapeutic agent is Carboplatin.

Figure 1: Anti-Flt-1 Ribozyme: ANGIOZYME





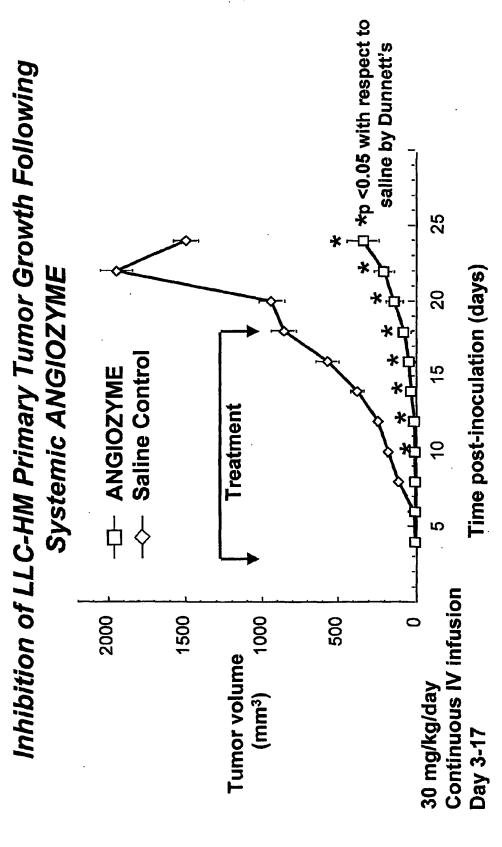


Figure 2

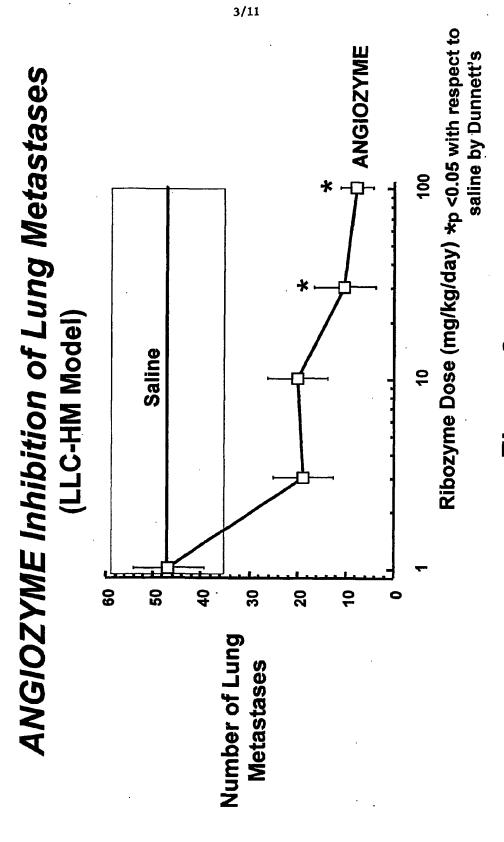
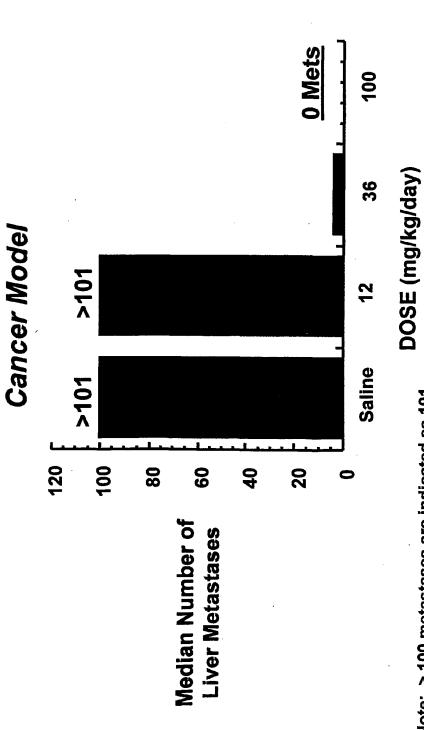


Figure 3

Effect of ANGIOZYME on Liver Metastases in a Colorectal



Note: > 100 metastases are indicated as 101.

Figure 4

Figure 5: Plasma concentration profile of ANGIOZYME after a single subcutaneous dose of 10, 30, 100 or 300 mg/m²

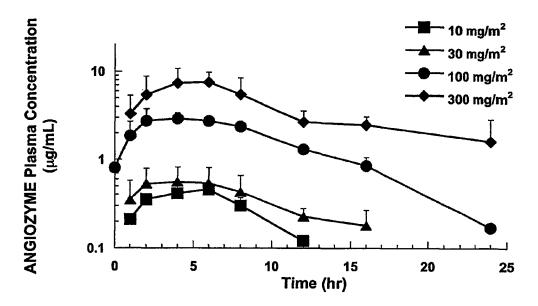
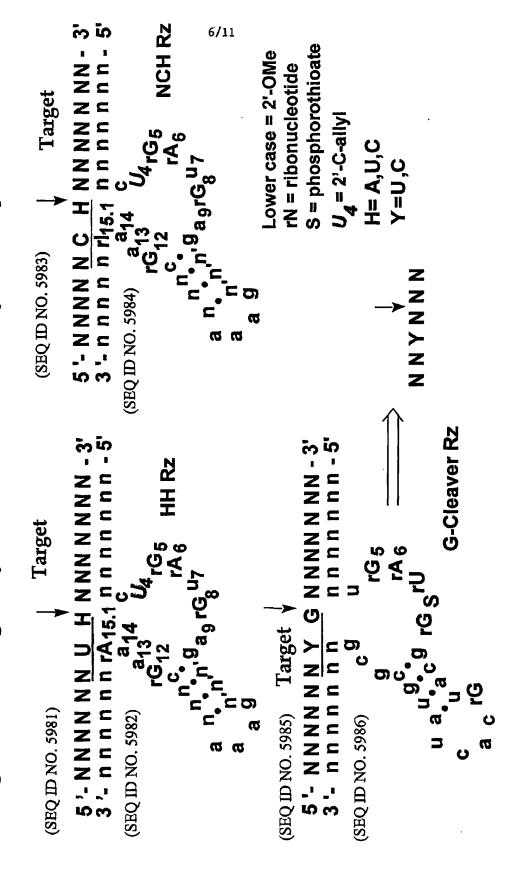


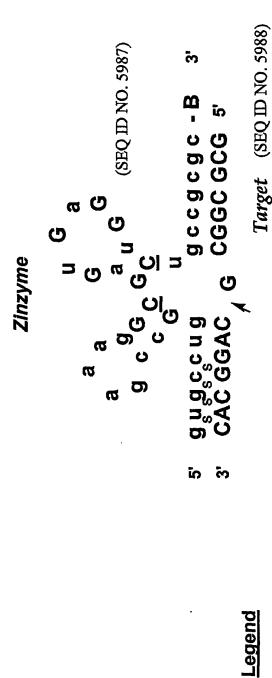
Figure 6: Examples of Nuclease Stable Ribozyme Motifs



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Figure 7: Stabilized Zinzyme Ribozyme Motif



Uppercase: indicates natural ribo residues

C: indicates 2'-deoxy-2'-amino Cytidine

Lowercase: 2'-0-methyl

S: phosphorothioate/phosphorodithioate linkage

B: 3'-3' abasic molety

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Figure 8: DNAzyme Motif

5' RNA Target Stem I Target Stem II (SEQ ID NO. 5989)

Legend
Y = U or C
R = A or G

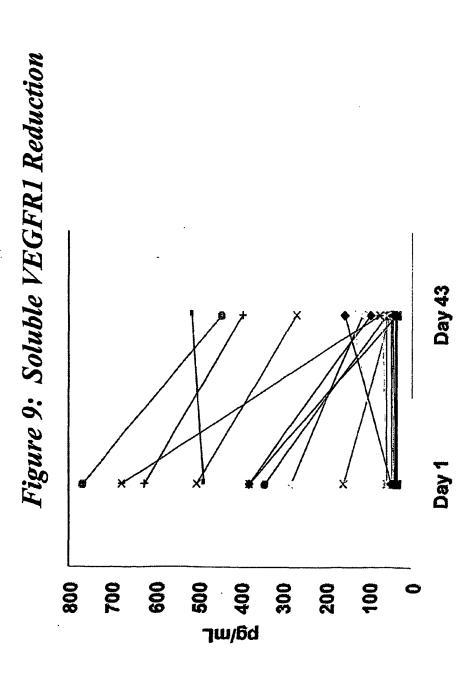
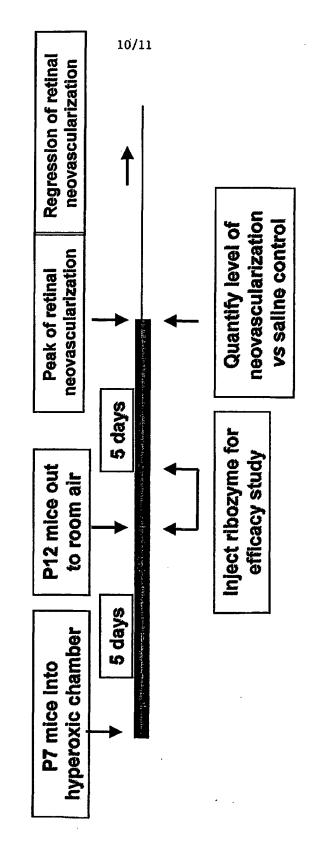
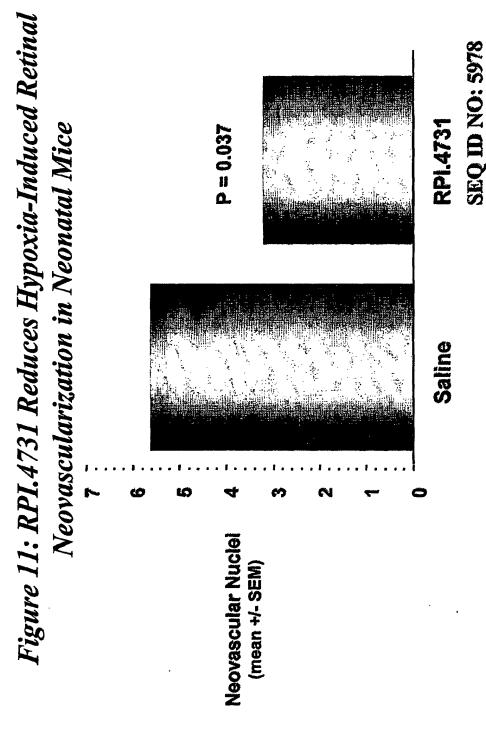


Figure 10: Mouse Model of Proliferative Retinopathy



Note: Peak VEGF levels noted 12 hr after exposure to room air



Results: ~40% decrease in retinal neovascularization following two intraocular injections of RPI.4731